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ABSTRACT

Incorporating the use of simulators, multimedia systems, and range setups, this driver education curriculum guide provides basic guidelines for the instructor and suggestions for supplemental student activities under these three instructional phases. An introductory section outlines the standards for driver education programs established by the Ohio Department of Education and makes suggestions for involving parents and the community. The multimedia guide includes sixteen lessons and suggestions for developing multimedia materials. Each lesson is designed to supplement existing prepackaged programs in two Aetna Life and Casualty multimedia systems--Multimedia Series and IPDE Response Series. The second guide, which deals with the driving simulation phase, supplements the printed materials that accompany the simulation equipment and provides added learning, perceptual, and skill development activities. It includes thirteen lessons as well as suggestions for integrating the simulation phase into the driver education program. The third unit deals with the multiple-car range phase and discusses its definition and purposes, administrative considerations, facility design, and equipment. It contains eight lessons and supplementary activities. The format for each lesson plan in the entire guide provides some or all of the following information: related program(s) or film(s), task, objective, supplemental activities, teacher performances, and handouts. A concluding chart coordinates the three phases with classroom instruction. (YLB)

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DRIVER EDUCATION CURRICULUM GUIDE

Ohio Department of Education
Division of School Finance
Driver Education Section

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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FOREWORD

Technological advances have permeated nearly every aspect of American life, simplifying innumerable tasks and often lowering the costs to perform these tasks. As budgets continue to tighten in school systems and one-to-one teaching situations have become less feasible, education has turned to technology in an attempt to find ways to maintain quality while simultaneously reducing costs.

The teaching of driver education has been particularly well suited to the use of technological teaching innovations, namely, simulators, multimedia systems, and range set-ups. Simulators and ranges provide students with realistic behind-the-wheel experience at less cost to taxpayers because both substantially increase the teacher-student ratio. Simulation and multimedia systems deliver instant feedback through computerized consoles on each student's progress and enhance the opportunities for individual instruction.

The State Board of Education recognizes these three teaching tools as an important part of providing comprehensive driver education. To further develop the use of these tools throughout the state, the Ohio Department of Education, Division of School Finance, Driver Education Section, has developed this curriculum guide with funds provided by the Governor's Highway Safety Program, National Highway Traffic Safety Administration.

Ohio's driver education program represents a major contribution toward the reduction of injuries and fatalities on our nation's streets and highways. It is our hope, therefore, that this guide will contribute even further to educating competent and cautious young drivers.

Franklin B. Walter

Franklin B. Walter
Superintendent of Public Instruction

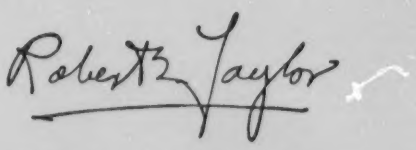
APR 17 1990

PREFACE

The Ohio Traffic Safety Education Center (OTSEC), a project of The National Center for Research in Vocational Education at The Ohio State University, is funded by the Ohio Department of Highway Safety and monitored by the Ohio Department of Education, Division of School Finance, Driver Education Section. OTSEC was organized to provide assistance to the citizens and state departments of Ohio in five basic functional areas: research, development, service, education, and dissemination. These areas to a large extent parallel the functional areas of the National Center.

Within the five areas, driver and traffic safety education projects at OTSEC have been broad in scope. They have included such activities as developing driver education curricula for use in public schools, publishing a traffic safety newsletter for distribution throughout the state, developing a driver education information package for local school boards, organizing and operating a driver and traffic safety information center, conducting workshops in motorcycle safety and driver education for the handicapped, and many others.

The outcome of OTSEC's research, development, and education programs has been heightened awareness of driver and traffic safety practices on the part of Ohio's citizens. By furthering this awareness, OTSEC has made and will continue to make a positive impact on traffic safety in Ohio.



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The staff of the Division of School Finance, Driver Education Section, express appreciation to all the workshop participants, writers and researchers, field-testers and critical evaluators who contributed to the development of this curriculum guide. The original workshops were held through Bowling Green State University under the direction of Bruce Bellard and Dale Krynak and at Wright State University under Wylie Graham's direction.

The entire curriculum effort on the use of multimedia systems, simulation, and multiple-car ranges, sponsored by the National Highway Traffic Safety Administration, studied the design and selection of behavioral objectives; human factors (learning, perception, risk acceptance, information processing, vision, motivation); current multimedia, simulation, and range research; existing instruction units in the United States and Europe, and cost effective traffic safety countermeasures.

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developing

careful young drivers

through education

Ohio Department of Education

Purpose

School administrators and staff are being encouraged to explore alternatives in educational programs to find ways of reducing costs while maintaining quality instruction. Driver education programs offer a variety of approaches to address this problem. These include the unique modes of multimedia, simulation, and range. Schools should consider the possibility of developing a multimedia, simulation, and range plan to enhance existing programs.

This guide contains three instructional phases of the driver education program, each displaying distinctive characteristics and contained in a separate section. The purpose of this guide is to provide basic guidelines for the instructor and suggestions for supplemental student activities. The instructor should become familiar with this guide as a whole and then select those phases and lessons which best apply to his or her driver education program.

Points to Consider

It is suggested that the driver education supervisor and staff consider the advantages and disadvantages of each alternative approach to teaching driver education in order to arrive at the most cost efficient decision. In making a determination of any alternative, consider the following factors:

1. Standards for driver education programs in the State of Ohio
2. Program budget
3. School size
4. Existing facilities and equipment

Further, driver education staff should investigate the availability of other funding for the procurement of additional equipment.

It is important to point out that the *Standards for Driver Education Programs* established by the Ohio state department of education must be considered when establishing a new phase in the driver education program. Those standards which directly apply to the multimedia, simulation, and multiple-car range phase of the program follow.

Standards

The *Standards for Driver Education Programs*[1] in Ohio clearly state:

3301-81-02 Length of course

A. Each board of education shall make the standard high school driver education course available to all eligible students and school-age youth which shall consist of a minimum of sixty hours. A request for an exception to this section may be approved by the Ohio department of education.

The courses shall be as follows:

1. The standard sixty-hour course shall include thirty-six hours of classroom instruction and twenty-four hours of laboratory instruction of which six hours shall be actual behind-the-wheel instruction.

2. The standard sixty-hour high school driver education course shall be a minimum of four weeks duration.

B. The following also applies to the instruction and laboratory phases of driver education:

1. When a multimedia programmed learning system is included as a phase of the standard sixty-hour driver education course, it shall replace no more than twenty hours of classroom instruction.

   Special permission for multimedia programs shall be secured from the Ohio department of education. When state-owned driving simulation and multimedia equipment is leased to a school district, it shall be used a minimum of four hours a day during the time school is in regular session.

2. When simulation is included as a phase of the standard sixty-hour driver education course, twelve hours of simulation may substitute for two hours of behind-the-wheel instruction, or observation time, or classroom instruction.

3. Multiple car off-street driving ranges may be used to substitute for a designated number of hours of behind-the-wheel instruction. The number of hours of substitution shall be determined by the Ohio department of education and shall depend upon the size and design of the range. Simulation and multimedia systems may be used in conjunction with driving range facilities. Written approval from the Ohio department of education shall be required for the district to establish and maintain a driving range.

   When multiple car off-street driving range facilities are provided by the Ohio department of education, they shall be used a minimum of four hours a day during the time school is in regular session.

[1] *Standards for Driver Education Programs (Columbus, Ohio: Ohio Department of Education, 1977).*

4. A pupil may not be involved in more than four hours of in-car instruction of which no more than two hours are behind-the-wheel instruction during one calendar day.

5. At no time shall a driver education teacher or laboratory aide instructor conduct behind-the-wheel instruction with fewer than two students in the car.

3301-81-04 Teacher and laboratory aide instructors

A. Classroom teacher qualifications. Teacher qualifications shall apply to all teachers providing classroom instruction under rule 3301-81-01 of the Administrative Code. These qualifications do not apply to courses operated under Chapter 4508 of the Revised Code or rule 3301-81-01 (D) (3) of the Administrative Code.

1. Teachers providing classroom simulation, multimedia and/or range instruction shall hold a provisional or higher grade certificate with driver education endorsed on the certificate. This certificate shall be issued by the division of teacher education and certification of the Ohio department of education pursuant to rule 3301-21-13 of the Administrative Code.

2. Each driver education teacher shall meet the following criteria:

   a. Have a minimum of five years driving experience,
   b. Have a valid driver's license,
   c. Have no felony convictions,
   d. Have good physical health as evidenced by a health certificate signed by a doctor of medicine, licensed in the state of Ohio, upon the request of the board of education,
   e. Teachers seeking certification under this section shall present evidence of successful completion of six semester or nine quarter hours of college credit in driver and traffic safety education.

3. Teachers meeting the qualifications of (1) and (2) above are qualified to teach all phases of the driver education curriculum.

4. Substitute teachers for driver education must meet all qualifications of the regular certified driver education teacher as prescribed in rule 3301-81-04 (A) of the Administrative Code.

B. Laboratory aide instructor qualifications. In addition to the classroom driver education teacher, a board of education may employ laboratory aide instructors to teach the behind-the-wheel phase of driver education. The laboratory aide instructor shall meet the following criteria:

1. Have a high school diploma or a statement of high school equivalence issued by the division of guidance and testing, Ohio department of education,

2. Have a minimum of five years driving experience,

3. Hold a valid driver's license,

4. Have no felony convictions,

5. Have good physical health as evidenced by a health certificate signed by a doctor of medicine in the state of Ohio within six months of the time of application,

6. Complete a forty-hour driver education course prior to preemployment,

   This preemployment course shall be conducted by an educational section, Ohio department of education, and shall include methods of behind-the-wheel instruction.

7. Complete eighty additional hours of inservice instruction during the first two years of employment, forty hours each year,

   The eighty hours of inservice instruction shall be conducted by an educational institution approved by the driver education section, Ohio department of education, and shall include methods of behind-the-wheel instruction.

8. Hold an educational aide permit, valid for one year, issued upon evidence of completion of the forty-hour inservice instruction requirement,

   Individuals meeting the above criteria will be issued an educational aide permit. This permit will be renewed upon written request from the superintendent of the district employing the laboratory aide instructor. The request shall include evidence of completion of the required additional inservice training. These permits will be issued by the division of teacher education and certification, Ohio department of education.

C. Section 4507.40 (J) and (K) of the Revised Code shall disqualify any driver education teacher or any laboratory aide instructor from teaching any phase of the course in driver education. In addition, prior to being judged qualified, and annually thereafter, the Ohio department of education shall supply the names of all driver education teachers to the motor vehicle licensing agency, and shall in return receive the driving record of each person for evaluation to help determine their suitability to continue to serve as teachers of driver education.

D. No person shall be permitted to teach any phase of driver education within two years from the date of a driving while intoxicated (DWI) conviction.

3301-81-07 Driver training vehicles

A. Cars provided for all behind-the-wheel instruction shall be in safe mechanical condition, equipped with dual controls, instructor's inside mirror, seat belts for all occupants, and outside rear view mirrors installed on the right and left sides of the vehicles.

B. All vehicles used for driver education shall be so marked with a rooftop sign visible at a distance of 300 feet.

C. All vehicles used for driver education shall be properly registered on an inventory form provided by the Ohio department of education.

D. Vehicles obtained or used in driver education shall be used exclusively for that purpose.

E. Public boards of education are authorized to pay a service or lease charge for driver education vehicles, in accordance with section 3313.201 of the Revised Code and report such charge on form SF-460.

3301-81-08 Tuition and fees

A. No public or nonpublic pupil shall be assessed a tuition charge at any time for enrolling in a course in driver education provided by the public school.

B. A nominal laboratory fee, not to exceed ten dollars, may be assessed for the standard sixty-hour course.

3301-81-11 Purchase of liability insurance

For purposes of driver education courses, a board of education of any school district may procure a policy or policies of insurance pursuant to section 3313.201 of the Revised Code.

3301-81-15 Applicability of driver education rules

These rules apply solely to pupils enrolled in driver education courses which are regulated and approved by the Ohio department of education. These rules do not pertain to adult education classes.

3301-81-16 Compliance

Any school district not complying with all sections of these standards shall not receive course approval for the driver education curriculum and shall not receive a driver education subsidy payment.

Parent and Community Involvement

Invite parents to participate in an orientation program, possibly during an open house or specially scheduled meeting. Parents who are made aware of the goals and objectives of the total driver education program are generally more supportive of the program. This effort can benefit your program and the school as a whole. It is important to be sure that such a program is well planned. The community must see a quality program in action if it is expected to support your program. A well developed parent-participation program can:

- Inform parents of the methods used by driver education teachers to educate their children.
- Instruct parents in their role and responsibilities during and after the driver education course.
- Stress the parents' role and responsibilities after students are licensed.
- Update the parents' knowledge of safe driving practices and principles.

When planning a parent meeting consider:

- Obtaining approval from the school administrator or proper authority;
- Involving both supervisors and driver education teachers in the preparation and conduct of the program;
- Inviting parents to attend a meeting at the school. Specify location, time, date, and purpose;
- Arranging for appropriate meeting facilities, considering room size, seating arrangement, and clear directions and signs to the meeting room; and
- Using instructional aids; test and adjust all equipment before the meeting begins.

1. Film projectors
2. Magnetic board
3. Overhead projector
4. Simulator
5. Closed circuit television equipment
6. Projection screens
7. Multimedia system

In conducting the meeting:

- Follow a definite time schedule. Start the meeting on time.
- Explain the purpose and objectives of the driver education program.
- Explain the parents' role in both the meeting and the total program.
- Encourage parent participation.
- Explain the national, state, and local traffic accident problems.
- Display and explain the Bureau of Motor Vehicle licensing forms and procedures.
- Introduce the other driver education instructors.
- Follow the program.
- Show your enthusiasm.

Parent-participation programs, when well organized and carefully conducted, can benefit your total driver education program. Parents can:

- Suggest speakers for classroom instruction.
- Support your program in the community.
- Aid in the students' total learning process.

If you expect community support you will have to sell your program. Consider making similar presentations to community and civic groups. A similar format can be used.

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The Present Multimedia System

In the multimedia system of today, students are exposed to a variety of situations and become aware of the process of identifying, predicting, deciding, and executing—a process necessary for successful driving. Students are exposed to a process for systematically and efficiently gathering information. The students' role is basically one of processing information and making decisions.

The mechanics of the multimedia system include a 16mm sound projector adapted with a sensor, 35mm filmstrip projector, 35mm slide projector, tape cassette player, and computer. The tape contains both the sound information to be presented and the input pre-programmed signals which advance the filmstrip, a slide, or 16mm film. The computer indexes the response of each student for each question into a digital computer or a printout tape. It also may indicate the percent of correct answers.

The multimedia system enhances instruction in the following ways:

- Encourages full participation by each student,
- Provides feedback to the instructor on the progress of individual students and the class as a whole,
- Identifies those students requiring special help,
- Provides uniform quality instruction to all students,
- Provides course content compatible with current texts,
- Helps students who have reading difficulties,
- Exposes students to situations which cannot otherwise be provided (e.g., emergency situations), and
- Creates laboratory experiences in the classroom by way of filmed sequences.

The multimedia system also has the following capabilities:

- Adapts to the learning ability of the group,
- Individualizes preprogrammed materials,
- Takes role for the class,
- Evaluates and validates materials,
- Allows student participation,
- Programs existing or new materials,
- Extends the instructors' skills,

- Tabulates questionnaires, and
- Weighs responses to various questions.

Two prepackaged multimedia systems presently available are the "Multimedia Series" and the "IPDE Response Series," both developed by Aetna Life and Casualty. They are designed to supplement the basic driver education classroom curriculum. These multimedia systems can help in the development of the attitudes and skills necessary for safe driver performance and predictable driver behavior. They include descriptions of the content, objectives, presentation outlines, and suggested related activities.

Design of the Guide

This multimedia guide includes sixteen lessons and suggestions for developing your own multimedia materials. Each lesson is designed to supplement the existing prepackaged programs. Each lesson is divided into two parts. The first part of each lesson lists appropriate prepackaged multimedia programs and provides a statement of the tasks and objectives to be accomplished.

The second part lists supplemental student activities. The purpose of this part is to encourage and promote teacher creativity and to assist the teacher in meeting individual needs of students in the classroom.

Each lesson includes:

- Related Program (Multimedia Series and IPDE Series)
- Task
- Objective
- Supplemental Student Activities

Aetna has developed lessons to accompany each film, and this guide is arranged to complement those lessons. Suggestions are given to the instructor as to how the programs can be correlated with the subject matter of the classroom phase (The activities may help relate visuals to the classroom curriculum and may be conducted either in or out of the classroom). These programs can be used for large groups or for individual students.

Evaluation

The form of evaluation for each lesson will be influenced by the supplemental activities used by the instructor. Evaluation may include:

- Quiz
- Unit test
- Multimedia responses
- Teacher evaluation of discussion
- Teacher evaluation of reports

IPDE and Multimedia Program Titles

The following is a list of the programs included in the two series developed by Aetna Life and Casualty.

IPDE Response Series

Strategy for Driving
Identify and Predict
Isolate and Stabilize
Compromise and Separate
Principles of Passing
Joining and Leaving Traffic Formations
Evaluating Expressway Dynamics
Reacting to Emergencies
Impediments to Vision and Control
Vehicle Roadway Interactions
Man-Machine Interactions
Understanding and Controlling Driver Behavior
Personality and Perception
Personal/Social Interactions
Drinking and Driving
Driver Responsibility
Interacting with Motorcycles
Getting Your Money's Worth
Putting It All Together

Multimedia Series

The Challenge of Traffic
Psychophysical Factors
Social Pressure
Attitudes and Emotions
Forces of Nature, I
Forces of Nature, II
Rules of the Road
Signs of Life
Getting Ready to Drive
Learning Basic Skills
Precise Maneuvers
City Driving
The Open Road
Defensive Driving
Driving Emergencies
Adverse Driving Conditions
The Responsible Driver
Missing Links

Suggested Programs Listed by Lesson Subject

In the Classroom

The various multimedia programs are categorized below by lesson subject for easy integration into the classroom curriculum. The teacher should preview each program to determine the proper placement of each into the schedule.

I. The Driving Task:
- Strategy for Driving
- The Challenge of Traffic

II. Physical and Psychological Factors:
- Psychophysical Factors
- Man-Machine Interactions

III. Emotions:
- Attitudes and Emotions
- Social Pressures
- Understanding and Controlling Driver Behavior
- Personal/Social Interactions
- Personality and Perception

IV. Laws:
- Rules of the Road
- Signs of Life

V. Car Orientation:
- Getting Ready to Drive
- Identify and Predict

VI. Turns:
- Learning Basic Skills
- City Driving
- Joining and Leaving Traffic Formations

VII. Driving in Traffic:
- City Driving
- Defensive Driving
- Isolate and Stabilize
- Compromise and Separate

VIII. Highway and Expressway Driving (Including Passing):
- Open Road
- Defensive Driving
- Joining and Leaving Traffic Formations
- Principles of Passing
- Evaluating Expressway Dynamics

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IX. Backing and Parking:
Precise Maneuvers

X. Adverse Conditions:
Adverse Driving Conditions
Impediments to Vision and Control

XI. Meeting an Emergency:
Driving Emergencies
Reacting to Emergencies

XII. Alcohol and Other Drugs:
Drinking and Driving

XIII. Motorcycles:
Interacting with Motorcycles

XIV. Buying and Insuring:
Getting Your Money's Worth

XV. Natural Laws:
Forces of Nature, I & II
Vehicle Roadway Interactions

XVI. Responsibility:
The Responsible Driver
Driver Responsibility

LESSON I: The Driving Task

Related Programs

The Challenge of Traffic (Multimedia Series)
Strategy for Driving (IPDE Response Series)

Task

To increase students' awareness of the importance of good driving in a complex driving environment through a detailed discussion and analysis of a typical traffic accident.

Objective

Students will:

1. List three main driving objectives for safe driving shared by most highway users.
2. Define the IPDE strategy.
3. Demonstrate the correct IPDE strategy in selected traffic scenes.

Supplemental Student Activities

- Give a report on the probable events leading to an accident.
- Observe and make notes of traffic conditions or driver errors which could result in an accident.
- From reports in the local newspaper, create an accident location spot map.
- From accident statistics, make charts and graphs of accident facts and trends.
- Photograph a traffic accident to show to the class. Attempt to explain the factors involved in the accident.
- Interview five experienced drivers. Ask them to name their reasons/objectives for driving and the physical and mental abilities they think are most important to the driving task. Write a brief essay comparing their answers.
- As a passenger in a motor vehicle, list the various factors that affect the driver.
- Apply the IPDE strategy when shown pictures of various traffic situations.
- Discuss the topic "accidents do not just happen but are caused by a complex interaction of human and environmental factors."

LESSON II: Physical and Psychological Factors

Related Programs

Psychophysical Factors (Multimedia Series)
Man-Machine Interactions (IPDE Response Series)

Task

To develop students' awareness of how one's senses and individual physical characteristics are related to the driving task.

Objective

Students will:

1. List and define the perceptual and physical abilities needed in driving.
2. Explain the relationships of perceptual and physical ability to the IPDE strategy.
3. Evaluate their own perceptual and physical abilities using mechanical devices or other methods available in the classroom.
4. Describe their own emotions and how these emotions may influence their driving.

Supplemental Student Activities

- Rank the senses used in driving according to their importance to the driving task.
- If the school has visual testing equipment, test your vision.
- Make visual testing equipment.
- Report to the class on the vision tests required for a driver license.
- Demonstrate how visual perception can be affected by color, size, distance, motion, light, and darkness by showing various "optical illusion" type pictures or illustrations.
- Discuss how the following influence your driving:

Lateral field of vision	Medication
Depth perception	Other drugs
Glare	Alcohol
Hearing	Fatigue
Temporary illness	Personal limitations

- Discuss methods of compensating for visual problems such as depth perception.
- Discuss what adaptions can be made to aid the physically handicapped in driving.

LESSON III: Emotions

Related Programs

Attitudes and Emotions (Multimedia Series)
Social Pressures (Multimedia Series)
Personality and Perception (IPDE Response Series)
Personal/Social Interactions (IPDE Response Series)
Understanding and Controlling Driver Behavior (IPDE Response Series)

Task

To develop the students' understanding of how emotions, such as anger, anxiety, and other frustrations can be controlled so that driving is not impaired.

Objective

Students will:

1. List and explain three attitude states that control behavior.
2. Explain what influences affect driving behavior.
3. Describe various emotional problems and how they may influence driving behavior.

Supplemental Student Activities

- Role play different emotions which a driver might experience.
- Make a list of statements that reflect beliefs and attitudes. Predict the behavior that could result from each attitude.
- Describe the effect the following people may have on your driving behavior when they are passengers in your car: (a) parent, (b) friend, (c) older brother or sister, (d) younger brother or sister, (e) driver education teacher, (f) driver license examiner.
- Have a panel discussion on the effects of attitudes on driving.
- Write a newspaper article discussing attitudes which may prevent or cause accidents.
- Discuss attitude states which can control your behavior; explain how they control.
- Have talks by local safety service directors or police.
- Chart the penalties and fines in traffic court for one week.

LESSON IV: Laws

Related Programs

Rules of the Road (Multimedia Series)
Signs of Life (Multimedia Series)

Task

To increase students' understanding of the rules of the road and road signs, signals, and pavement markings.

Objective

Students will:

1. Identify highway signs, colors, shapes, and messages and explain what actions drivers should take.
2. Identify several kinds of road markings and tell how they are intended to control traffic.
3. Explain how speed selection and control affect safe driving performance.
4. Relate the motor vehicle laws of Ohio to the multimedia program.

Supplemental Student Activities

- Use a location where a speed limit sign is posted. Based on the relationship between speed and stopping distance, defend the appropriateness of the established speed limits. Use diagrams.
- Recite the basic traffic rules.
- Draw pictures of violators of the basic traffic rules.
- Report traffic rule violations observed in actual driving situations.
- Analyze conflicts and similarities in state and local traffic regulations.
- Identify the signs located on the route from school to your home.
- Discuss the purpose of flashing lights and the rules regarding them.
- Draw a straight and a curved two-lane road and a four-lane highway. Then draw in the following roadway markings in the appropriate places: (a) broken yellow lines, (b) double solid yellow lines, (c) broken white lines, (d) broken yellow and solid yellow lines, and (e) solid white lines. Explain what they mean.

- Discuss why you think drivers obey some signs and not others.
- Discuss the purpose of and rationale for the right-of-way.
- Discuss speed as it relates to safe driving performance and control of the car.

LESSON V: Car Orientation

Related Programs

Getting Ready to Drive (Multimedia Series)
Identify and Predict (IPDE Response Series)

Task

To provide practice in locating the gauges, instruments, switches, and controls in an automobile and teach the functions of these components.

Objective

Students will:

1. Locate the common gauges, instruments, switches, and controls found in most motor vehicles.

2. Explain the function of each of these gauges, switches, instruments, and controls.

Supplemental Student Activities

- Draw a diagram of the instrument panel of the family car.
- Explain the difference between automatic and standard transmission.
- Examine a number of automobiles and compare the location of gauges, instruments, switches, and controls. Report your findings to the class.
- In the family or driver education car, practice locating and glancing briefly at various gauges, instruments, switches, and controls when another person calls out the name of that part. Practice using the various controls and switches and discuss the function of each. The engine should not be running during this exercise.

LESSON VI: Turns

Related Programs

Learning Basic Skills (Multimedia Series)
City Driving (Multimedia Series)
Joining and Leaving Traffic Formations (IPDE Response Series)

Task

To develop an understanding of the procedures used for making turns and to develop techniques for minimizing conflicts with other traffic while turning.

Objective

Students will:

1. List the kinds of turns a driver can make.
2. Describe routine turning maneuvers in laboratory sessions.
3. Perform routine turning maneuvers in laboratory sessions.
4. List and explain the four basic principles of entering and exiting any traffic formation.

Supplemental Student Activities

- Draw a diagram which illustrates the proper procedures for making right turns and left turns.
- Discuss the pros and cons of the right-turn-on-red law.
- Explain what is meant by "looking through" the turn to be made.
- Name two ways a driver can indicate to other drivers his or her intentions to turn at an intersection.
- Walk through the procedures for making a turn. Explain to the class what procedures you are using as you move. Point out how the IPDE principles apply as you make a turn.
- Role play being in a traffic formation. Demonstrate the basic procedures for entering and exiting traffic.

LESSON VII: Driving in Traffic

Related Programs

City Driving (Multimedia Series)
Defensive Driving (Multimedia Series)
Isolate and Stabilize (IPDE Response Series)
Compromise and Separate (IPDE Response Series)

Task

To develop an awareness of car positioning relative to lane usage, lane change, and following other vehicles and to identify various elements which affect changes in car position.

Objective

Students will:

1. Explain proper lane usage and lane position.
2. Identify potential hazards in a simulated traffic situation.
3. Explain how to establish and maintain a two-second following distance.

Supplemental Student Activities

- Make a list of driving cues that will help make drivers more aware and selective in their movements.
- Describe some driving situations that make it difficult to maintain a time-and-space cushion.
- Explain why one should develop a routine for performing basic driving maneuvers.
- Construct a chart showing the number of driving choices one has in (a) making speed adjustments, (b) braking, (c) steering, and (d) signaling.
- Diagram some traffic situations which could cause drivers to alter their driving path between intersections and at intersections.
- As a passenger, observe other drivers carefully. Study their reactions to various traffic situations. Determine whether they use the IPDE technique.

LESSON VIII: Highway and Expressway Driving (Including Passing)

Related Programs

Open Road (Multimedia Series)
Defensive Driving (Multimedia Series)
Joining and Leaving Traffic Formations (IPDE Response Series)
Principles of Passing (IPDE Response Series)
Evaluating Expressway Dynamics (IPDE Response Series)

Task

To provide students with the knowledge, skills, and attitudes necessary for sound judgment and efficient performance while driving and passing on highways and expressways.

Objective

Students will:

1. List the procedural steps for passing.
2. Identify five places where a driver should always predict possible threats to passing.
3. List the steps for entering or exiting an expressway.
4. Explain the appropriate uses of the right-hand lane, center lane, and left-hand lane.
5. Identify two ways to minimize conflicts with vehicles entering an expressway.

Supplemental Student Activities

- Diagram several unsafe passing maneuvers which could cause trouble for other drivers.
- Write a short essay describing the driving experiences that occured during a trip you took. Include as many details as you can remember.
- Describe some highway driving conditions that would make decision making difficult.
- While driving with a family member or with a friend, think about possible off-road escape routes you would take if your path were suddenly blocked. Then ask the driver if he or she would agree with the possible escape routes you chose.

- Select a section of a local roadway that seems to provide especially limited visibility. Figure out how the roadway could be improved. Make a drawing or diagram to show your solution.

- Show several highway driving environments; discuss what steps the driver should take to maintain safe driving in each case. Point out what decision should be made in relation to passing. Explain the decisions.

- Ride with experienced drivers and make notes about how they enter and exit the expressway.

- Interview a person who has been involved in an expressway collision. Try to find out what driver, vehicle, and roadway factors contributed to the crash. Prepare a written report of the findings.

- Invite a state highway patrol officer to the classroom to discuss the major errors drivers make on expressways, especially those errors which have led to serious problems.

- Plan a trip across country. List the interstate routes that you would use.

- Draw expressway traffic scenes and discuss the use of right-hand, left-hand, and center lanes. Point out what steps the driver should take when entering and exiting an expressway.

LESSON IX: Backing and Parking

Related Program

Precise Maneuvers (Multimedia Series)

Task

To provide students with the knowledge and skills to perform the following maneuvers: backing and parking (angle, parallel, and hill).

Objective

Students will:

1. List the steps necessary to accomplish the following maneuvers:
    a. Angle parking
    b. Parallel parking
    c. Hill parking
    d. Backing
2. Demonstrate body position and steering direction used when backing and parking.

Supplemental Student Activities

- Observe other drivers performing the parking and backing maneuvers. List the steps they took. Comment on the success or problems each driver experienced.
- Move model cars through the necessary steps for parking and backing.
- Demonstrate where one should look when backing straight, to the left, or to the right.
- Use a model car to demonstrate parallel, angle, and hill parking.
- Name some places where parking is illegal.
- Demonstrate the body and steering positions to be used when backing.

LESSON X: Adverse Conditions

Related Programs

Adverse Driving Conditions (Multimedia Series)
Impediments to Vision and Control (IPDE Response Series)

Task

To increase the students' ability to identify adverse driving hazards.

Objective

Students will:

1. List four weather conditions that limit vision and vehicle control.
2. Explain the steps to take when the vehicle begins to skid.
3. Describe hazards related to various adverse driving conditions and how to plan and prepare for these hazards in advance.

Supplemental Student Activities

- Explain hydroplaning and the cause.
- List factors that may cause a car to skid.
- Watch for critical driving situations. Observe the driver's response and note whether you feel the response was appropriate for the situation. What preplanning and preparation should have been done?
- Explain why it is important to evaluate off-road conditions even when there are not immediate hazards ahead.
- Check a friend's or a family car. Is it equipped with a good spare tire, jacking equipment, jumper cables, and a fire extinguisher? If any of these items are missing, ask the car's owner why they are missing. Does the owner think they are unnecessary?
- Discuss the relationship of visibility and traction to braking distance.
- Explain how to adjust braking distances to weather conditions. Why is it important?
- Give examples of four different weather conditions which limit vision and vehicle control.

LESSON XI: Meeting an Emergency

Related Programs

Driving Emergencies (Multimedia Series)
Reacting to Emergencies (IPDE Response Series)

Task

To provide information about how to handle emergency situations.

Objective

Students will:

1. React appropriately to a driving emergency.
2. Identify some possible routes for escape when a collision is imminent.
3. Describe four predriving procedures that will help a driver cope with emergency situations.
4. Identify measures to avoid getting into emergency situations.

Supplemental Student Activities

- Make a list of the steps to compensate for (a) tire blowout, (b) brake failure, (c) wet brakes, and (d) wheels off the pavement.
- Explain clues to potential auto problems that could lead to involvement in an emergency situation.
- Investigate the statistics on wearing seatbelts and report the findings to the class.
- Find out how proper maintenance procedures can decrease the number of problems which could lead to an emergency.
- While riding in a car, evaluate what you would do at certain points if you were faced with various emergency possibilities.

LESSON XII: Alcohol and Other Drugs

Related Program

Drinking and Driving (IPDE Response Series)

Task

To reemphasize the resulting consequences of alcohol and other drugs usage on the incidence of traffic accidents.

Objective

Students will:

1. Discuss how alcohol affects a person's physical and decision-making abilities.
2. Identify other types of drugs and predict their effect on behavior and driving performance.
3. Identify methods of combating the drinking-driving and drug abuse problem.

Supplemental Student Activities

- Invite a local police officer or other traffic official to talk to your class about drinking and driving. Ask them what problems they encounter when trying to enforce laws related to drinking and driving.
- Ask several experienced drivers about what drugs other than alcohol they have taken before or while driving. Report your findings to your class.
- Find out how police officers gather evidence about people they suspect of driving while intoxicated.
- Discuss the common so-called, "remedies" for intoxication. How effective are they?
- Explain why it is difficult for people who have been drinking to judge their own driving abilities.
- Collect newspaper articles on traffic accidents and find out how many of them relate to alcohol.
- Have an expert on drugs speak to the class. Ask the speaker how the affects of these drugs would relate to driving.
- Find out what the state laws are regarding driving while under the influence (DWI).

LESSON XIII: Motorcycles

Related Program

Interacting with Motorcycles (IPDE Response Series)

Task

To develop an understanding of the problems motorcycle riders experience when riding in traffic.

Objective

Students will:

1. Explain the difference between the maneuverability of the motorcycle and the automobile.
2. List conditions which may cause motorcyclists to change their driving patterns.
3. State the rules for motorcyclists.

Supplemental Student Activities

- Report on the rules and regulations that apply to operating motorcycles.
- Interview new and experienced motorcyclists. Ask them to identify the problems they have encountered with operating their motorcycles on the roads. Under what conditions would they change their driving pattern?
- Observe and report on motorcycling practices in your area.
- Compare the different motorcycles.
- Interview ten people of different ages and determine their attitudes toward motorcyclists in traffic.
- Identify two problems that a motorcyclist must continually cope with when interacting with other roadway users.
- Ask a motorcycle dealer to visit the class and discuss the differences between the maneuverability of motorcycles and automobiles on the road.

LESSON XIV: Buying and Insuring

Related Program

Getting Your Money's Worth (IPDE Response Series)

Task

To provide students with the knowledge necessary to make good decisions when buying a new or used automobile and to choose appropriate insurance.

Objective

Students will:

1. List the two most important features in buying a car.
2. List at least five areas to check when buying a used car.
3. List and explain at least three different kinds of available automobile insurance.

Supplemental Student Activities

- Contact a local insurance agent and find out the company's plan for automobile insurance.
- Describe the protection provided by various types of automobile insurance.
- Survey three insurance companies to find out the cost of insuring a vehicle of your choice.
- Visit local new and used car dealerships. Practice the purchasing techniques suggested in the multimedia program *Getting Your Money's Worth*.
- Check the newspaper for the price of a used car. Compare that price with other sources.

LESSON XV: Natural Laws

Related Programs

Forces of Nature I & II (Multimedia Series)
Vehicle Roadway Interactions (IPDE Response Series)

Task

To provide an understanding of the natural laws of gravity, friction, and centrifugal force and develop techniques for driving in accordance with these natural laws.

Objective

Students will:

1. List and explain four natural forces that affect vehicle control.
2. Explain the relationship between speed and stopping distance.
3. State how to adapt driving to comply with the natural laws.

Supplemental Student Activities

- Draw one or more large schematic diagrams showing how the forces of nature act on a car in such situations as these: (a) starting, (b) stopping, (c) rounding a curve, (d) driving downhill, (e) driving uphill. What should the driver do in each situation?
- Explain how the effects of the forces of nature change under different conditions.
- Give several examples of speed zones. Discuss the relationship between speed and stopping distance in each zone.

LESSON XVI: Responsibility

Related Programs

The Responsible Driver (Multimedia Series)
Driver Responsibility (IPDE Response Series)

Task

To learn what information is to be gathered or exchanged when involved in an accident.

Objective

Students will:

1. List and explain the information necessary to have in the event of an accident.
2. Explain civil and criminal court actions.
3. Discuss the legal responsibility of minors and their parents.

Supplemental Student Activities

- Find out what the possible civil and criminal court actions are in the state of Ohio regarding accidents.
- Ask an appropriate official to visit the class and discuss the legal responsibility of minors and their parents.
- Role play an accident situation. Gather all the necessary information. Continue this role play all the way through jail, the hospitals, and courts.
- Ask an emergency medical technician or a rescue squad member to speak to the class about the kinds of accidents they have been called to and what kind of first aid treatment they can administer during an accident.

Developing Your Own Multimedia Materials

Introduction

Many schools will not have access to the multimedia series which has been discussed in Section 1 of the guide. Thus, the following section is devoted to methods which can be used to create an audiovisual program. It covers:

Planning of materials

Audiovisual materials

Fundamental skills

- photography
- graphics
- mounting
- protecting the surface
- recording sound

Producing your audiovisual materials

- slides and transparencies
- filmstrip making
- motion pictures

Just as various instructional objectives require different kinds of learning, appropriate instructional resources must be matched to the proposed tasks. For each concept taught, consider a separate resource.

Certain media best serve certain purposes. In some cases, available equipment, convenience, costs, and other factors may determine the choice.

The following suggestions for preparation of audiovisuals have been adapted from *Planning and Producing Audiovisual Materials* by Jerrold E. Kemp, 4th Edition. To be published in 1980 by Harper & Row Publisher, Inc. Reprinted by permission of the publishers.

It is recommended that those who develop their own multimedia materials consult this resource for a more detailed explanation of the procedures described.

Planning of Materials

- Identify what must be learned.
- List your objectives.
- Identify the characteristics of the learner or audience.
- Get help if needed.

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- Try a team approach.
    1. Subject specialist
    2. Communication specialist
    3. Technical staff
- Locate and examine materials already prepared.
- Communicate with audiovisual specialists in school systems, universities, colleges, or business and industry for suggestions.
- Check the library.
- Review what you have done.
- Select the specific audiovisual materials.
- Decide on which materials can best communicate the content of specific objectives.

When making decisions about your program, ask yourself such questions as these:

- What medium (media) should be used?
- Is sound necessary or can a silent medium with titles, captions, and directions be used?
- Is motion important or can still pictures convey the ideas and information?
- Is the program for individual or group use?
- Is color important or is black-and-white satisfactory?
- Will it be necessary to keep materials up to date?
- What type of duplication, distribution, or storage will be needed?
- Will budget and time permit a good job?
- What problems can be anticipated?

Audiovisual Materials

A variety of audiovisual materials may be applicable to a specific objective. The decision about what to use may be based on your skills, equipment requirements, convenience, or cost.

- Photographic Print Series

  These series may consist of drawings or photographs, in black-and-white or in color. Usually they are enlargements from camera negatives. They may include captions or directions. They may be used as a display or part of a programmed sequence.

- Slide Series

  Slides are a form of projected audiovisual material and easy to prepare. Satisfactory slides can be made, using a 35mm camera. Standard slides are two inches by two inches and are easy to handle and store. Sequences can be changed and slides may be selected from a number of series for special uses. There is one disadvantage, however; slides may be placed out of order or misplaced. Numbering the slides is recommended. A slide program can be controlled by the presenter or cued by a tape. Small compact viewers are useful for individualized instruction.

- Filmstrips

  35mm filmstrips are compact, easy to handle, and are relatively economical to duplicate. They are, however, more difficult to prepare than slides. Usually enlarged photographs, drawings, and titles are prepared and then photographed in sequence with a suitable 35mm copy camera. Many commercial film laboratories will convert the slides or transparencies into filmstrip form. An accompanying narration may be in the form of captions filmed with the pictures, or a separate tape recording.

- Tape Recordings

  Recordings may be prepared for a group or for individuals. Care should be taken that these recordings do not become mere oral textbooks. Correlation with visual materials may be desired to accomplish the most effective instructional potential.

- Overhead Transparencies

  The projector is used near the front of the room, with the instructor facing the group. Progressively disclosing areas of a transparency and adding overlap films to a base transparency are special features of this media.

- Motion Pictures

  Motion pictures, whether 8mm or 16mm, are the most complex and more costly of the audiovisual materials. This medium should be considered when motion is inherent in a subject or a dramatic impact is desired. Sometimes a brief film is sufficient. In the production of a motion picture, someone experienced in making films should be a member of the production staff.

- Videotape Recordings

  Television is a medium in which images are recorded electronically in black-and-white or color on magnetic tape along with sound. The essential equipment includes a television camera and microphone, a videotape or videocassette recorder, and a television monitor to view what has been recorded. The immediacy of being able to see what has just been recorded is a key feature that differentiates this type of material from the other photographic forms. Both cameras and recorders are compact and portable. A single person can move to any location and shoot tape under almost any condition, using a single camera. The recorded tape then is edited electronically into final form.

Fundamental Skills

Photography

The effectiveness of your visual materials is strengthened by the careful arrangement of elements within each picture. The following guidelines are suggested:

- Have only one major subject or center of interest in a scene.
- Place the center of interest near to but not directly in the exact center of the picture area.
- Do not be static from one scene to another by shooting from the same relative camera position or angle.
- Keep the background simple.
- Include some foreground detail to create an impression of depth.
- If action or movement is implied in a picture, allow more space or picture area in the direction of the action rather than away from it.
- Have the color of the center of interest contrast with the background and surrounding objects. This helps to prevent it from becoming lost in the picture.
- Include some familiar object for comparison in the picture so that the size of unknown objects is clear.
- Try not to mix vertical and horizontal photographs in a series.
- Use common sense. Ask yourself, "what am I trying to accomplish with this picture or scene?" If necessary, view the scene from two or three positions and make pictures from each for future selections.

Graphics

The success of many audiovisuals can be attributed to the quality and effectiveness of the art work and related graphic materials. Even the amateur can achieve quality equal to professional products.

- Planning art work, consider
    1. Size of working area
    2. Proportions of audiovisual materials
    3. Design and layout
    4. Backgrounds
    5. Resources that you can employ

When using illustrations of subjects in addition to photographs, include original drawings or copies of available pictures.

- Using ready made pictures

Maintain a file of clipped pictures. At times, part of a picture or combined sections of two or more pictures may be needed. Remember that such pictures may be copyrighted; you may need the permission of the copyright holder.

- Changing the size of the visual

There are a number of machines and hand techniques you might consider using to change the size of available diagrams or illustrations:

1. An opaque projector can be used by placing the picture on the holder of the projector and attaching a piece of paper to a wall. Adjust to the size you desire. Trace the main lines of the projected picture with a pencil. Go over the drawing with ink or felt pen.

2. An overhead projector can be used to make an enlargement if a transparency or slide of the original is available. The overhead projector can also be used to reduce. Attach the original large diagram to the wall and aim a flood light or slide projector at it. Sufficient light must be reflected from the diagram through the lens of the projector to be visible on a white sheet of paper placed on the projection stage. Move the lens up and down to focus the image on the paper. Control the size by moving the whole projector closer to the wall or farther from it. Sketch the visual over the image on the sheet of paper.

3. The squaring method of preparing a grid on the acetate or translucent paper is used to change a picture size. Determine the size and detail in the picture you want. Then make a second grid with squares proportionally larger or smaller than the first one. Place the first grid over the picture and copy the relative position of each line onto a piece of translucent paper placed over the second grid.

Mounting

Some methods of mounting are temporary; others are permanent.

- Rubber-cement method: This method requires no special equipment. It will accomplish temporary or permanent mounting.

- Dry-mount method (on cardboard): This method results in permanently and neatly mounted materials. You will need dry mounting tissue, trimmer, cardboard backing, hand iron or dry mounting press, and tacking iron metal weights.

Materials needed:

1. picture and cardboard
2. iron
3. scissors
4. paper for protection
5. metal weight

Procedure:

1. Preheat both the picture and cardboard for ten seconds to remove moisture.
2. Adhere the dry-mount tissue to the back of the picture by touching the tissue directly with the iron. Always protect the table top with paper.
3. Trim the picture and the tissue together on all sides.
4. Align picture on cardboard.
5. Tack the tissue to the cardboard in two corners.
6. Cover the picture with a clean sheet of thin paper. Seal the picture to the cardboard with hard pressure for five to ten seconds. With the hand iron, maintain a slow circular motion.
7. Cool the mounted picture under a metal weight.

- Dry-mount method (on cloth): This is used when visuals require a pliable backing. A dry-mount cloth can be adhered to the back of the materials to give them durability and still maintain flexibility.

Materials needed:

1. dry-mount press or iron
2. chart or picture
3. cloth
4. paper
5. scissors

Procedure:

1. Set the dry-mount press at 255 degrees, the tacking iron at medium, and the hand iron at rayon.
2. Dry the chart in the press or with the hand iron.
3. Place the chart face down on a sheet of clean paper.
4. Cover the back of the chart with sufficient cloth. Place the adhesive coating against the back of the chart.

5. Tack the chart to the cloth in one large spot.

6. Cut the cloth to match edges of chart or leave excess cloth all around for a cloth margin. Plan for two or three inches of extra eyelets.

7. Cover the chart with paper and seal in the dry-mount press or with the hand iron. Apply heat to each section for at least five seconds. Cool under a weight.

8. Check for bubbles or wrinkles. Iron or press again as necessary.

Protecting the Surface

A clean plastic spray or, preferably, a sealing of a clear plastic laminating film may be applied over the face of the picture to protect the surface.

Materials needed:

1. dry-mount press or iron
2. picture
3. cardboard for protection
4. laminating film
5. scissors
6. paper
7. metal weight

Procedure:

1. Set dry-mount press at 270 degrees or the tacking iron on high.

2. Dry the mounted picture in the press for 10 seconds.

3. Extra pressure is required for laminating. Put a piece of heavy cardboard or masonite on the rubber pad of the press.

4. Cut a piece of laminating film to cover the entire mount surface.

5. Tack the film to the mount in one spot with a piece of paper and place between the film and the tacking iron.

6. Trim excess film so none overhangs the mount edge.

7. Smooth the film over the mount. Cover it with a sheet of paper. Seal the assembly in the process for at least 15 seconds.

8. Cool under a metal weight.

Some machines will do the laminating process only. Others are multipurpose. The need for such equipment is an individual decision.

Recording Sound

Recordings may be used in conjunction with the visuals. These may be on a reel of tape, a tape cassette, or on motion picture film.

- Narration and script

  Choose one or more persons who speak clearly and who can read the script in a conversational tone with proper feeling and expression. Mark the script to indicate points of emphasis and pauses.

- Music and sound effects

  Do not let music interfere with the message. Select musical recordings carefully. The purpose of music is to create a desirable mood and maintain continuity.

- Recording procedure

  Three people are needed to make a recording: the narrator, a cue giver (someone familiar with the timing of the narration in relation to the pictures), and a person to operate the recorder or projector.

  During recording, it is possible to include music, sound effects, a low tone, a brief buzz signal, or tap to indicate slide or film changes. The best source for a controlled tone or signal is an electric audio "sync" generator.

- Tape editing

  After the recording is completed, tape editing may be necessary to remove slight imperfections, rearrange elements into a more cogent order, add tape for lengthening pauses or even to substitute a corrected bit of narration.

  Procedure:

  1. Listen to the recorded tape and use the index counter on the recorder to note location of spots.

  2. Replay the tape and stop at the first spot.

  3. Pinpoint the spot to be edited by moving the tape manually back and forth across the play back head.

  4. Carefully mark cutting points on the base or shiny side of the tape. Use a fine tipped felt pen or a china-marking pencil.

  5. Cut the tape; remove the felt pen or grease-pencil marks, then splice the ends together or add tape as necessary.

  6. Repeat the same procedure at the next editing spot.

- Tape splicing

Most of the tape splicing units are used as follows:

1. Set one piece of tape, with shiny (base) side up, firmly in the splicing channel so it just passes the cutting groove.
2. From the other side do the same with the second piece of tape.
3. Draw the razor blade across the 45 degree cutting groove to cut both pieces of tape at the same time. Remove the waste end of tape.
4. Cover the cut with a one inch piece of splicing tape.
5. Rub firmly with a fingernail or nonmetallic burnisher.
6. Draw the blade along both edges of the splicing channel to trim any excess splicing tape extending beyond the edges of the magnetic tape.
7. Examine the splicing for strength.

If you do not have a splicing unit, follow this procedure:

1. Line up the tape ends, shiny sides up and overlapping, then cut through both tapes at a 45 degree angle.
2. Butt the cut ends exactly together.
3. Cover the cut with splicing tape.

Producing Your Audiovisual Materials

Slides and Transparencies

- For preparing diazo masters, transparencies, or slides:

1. Soak film and paper in a container of water for about one minute. Add Seal Tonic to water. Film will have a tendency to curl. This is natural; it will uncurl during the soaking period.
2. Gently peel paper from film. Flick back one corner to help release the paper. If peeling is difficult, return paper and film to the water for additional soaking.

3. Return transparency film to the water and gently wash off clay residue from transfer slide (dull side) with cotton or soft tissue. Blot transparency dry with paper towels or hang to dry. When dry, dull side will have an "ashy" appearance.

4. Spray dull side of film with clear plastic spray. This will make the image on the film more transparent and will provide a protective coating for the transfer side. Hold spray can about 10 inches above the film and spray back and forth to apply an even coat of plastic.

5. Mount for viewing.

- Picture-transfer self-sealing acetate

Transparencies in full color can be made with self-sealing acetate. This type of acetate is transparent and has a pressure-sensitive adhesive on one side. Printed matter and visuals on clay-coated paper, combined with self-sealing acetate, can be processed to produce quality transparencies for projection or viewing as follows:

1. Carefully remove desired page from magazine after it has been given the "clay test."

2. Cut acetate slightly larger than visual to be transferred. Peel glassine paper from acetate by first flicking back one of the corners. This will help release the paper and allow for easy peeling.

3. Attach sticky side of acetate to face of visual. Look through the acetate to position accurately on the visual. Make first contact at center.

4. Turn printed page over and rub the entire surface with the flat side of a comb or similar item held at an angle. Use heavy, even strokes. Place a protective sheet of paper on top to prevent damage to visual during rubbing.

5. Soak in container of water for about 10 minutes. A tablespoon of liquid soap will help speed up the soaking time. Thicker paper will require additional soaking time.

6. Gently peel paper from acetate. Flick back one corner to help release the paper. If peeling is difficult, return paper and acetate to water for additional soaking.

7. Return transparency to the water and gently wash off clay residue from transfer side with cotton or soft tissue. Blot transparency with paper towel or hang to dry. When dry, dull side will have an ashen appearance.

8. Spray dull side of transparency with clear plastic spray. This will apply a protective coating and will make the image more transparent.

9. Mount for projection or viewing.

- Mounting transparencies

  Mounting protects transparencies and makes them easier to handle. Tape a transparency to the underside of the frame. Use masking or plastic tape rather than cellophane tape for binding. If the transparency consists of a base and overlays, tape the base to the underside of the mount as usual, and the overlays to the face. Be sure the overlays match up with the base and each other. Then fasten each overlay with a tape along one edge of the cardboard frame. After mounting overlays, attach small tabs of masking tape or adhesive-back labels on those loose upper corners of each overlay. Number them to indicate the order to use. These labels are easy to grasp when overlays are to be set in place over the base.

- Using overhead transparencies

  - Use a pointer on the transparency to direct attention to detail.
  - Use a felt pen or special pencil to add details or emphasis.
  - Move overlay sheets to rearrange elements of a diagram or a problem.
  - Control the rate of presenting information by covering a transparency with paper and exposing it in part as you are ready to discuss each point.
  - Superimpose additional transparent sheets.
  - Simulate motion by using polarized light on special plastic with a polaroid spinner.
  - Show three dimensional objects from the stage of the projector—in silhouettes if the object is opaque or in color if an object is made of transparent color plastic.
  - Duplicate for the class.
  - Simultaneously project other visual materials (slides or motion pictures) which illustrate or apply the generalizations shown on a transparency.
  - Involve students by requiring answers to questions or solutions to problems.

- Using the overhead projector.

  Some related materials which can be used with the projector follow.

  - An acetate roll can be attached to the projector. This sheet can be rolled across to the top of the projector. Material can be written on the acetate, the acetate rolled to a clean area and written on again. To refer to past material, roll acetate back.
  - Overlays can be made by taping two, three, or four transparencies together hinge fashion. The original transparency is presented first; overlays add additional details. All transparencies may be presented together and details eliminated by folding back overlays.

A sheet of clear acetate mounted on the topside of the transparency frame will protect your transparency and allow you to add details for temporary use.

Opaque overlays may be used to cover part of a transparency. The overlay may be a sheet of paper, a narrow strip to mark or cover lines, or a cut-out to reveal a single word.

- Lightboard and stylus are used on the stage of the projector and erased like a magic slate.

- A motion adaptor can be attached to the arm of the projector. It must be used with specially prepared materials. The transparencies appear to move.

- Kinds of Film:

  Re-used X-ray film
  3M film for use in thermal copying machines
  Mylar (Dupont) acetate sheets
  Clear plastic sheeting of .004 thickness, used by builders for waterproof seal. It accepts permanent markers and may be typed on.

- Kinds of writing tools for use directly on transparencies:

  1. grease pencil
  2. felt pen
  3. permanent ink marking pen
  4. colored pencils
  5. water color pen

Filmstrip Making

1. Sketch your ideas on a planning sheet.
2. Cut appropriate amount of film (1 foot = 17 frames).
3. Place films on planning guide and secure with pins.
4. Transfer your ideas from the planning sheet to film. Use lots of color. Apply background color with a permanent ink pen; allow ink to dry about one-half minute. Then you can write or draw over the color with permanent or erasable inks. Leave four frames for the leader.

Motion Picture

Types of camera shots

There are three basic types of shots: the long shot, the medium shot, and the close-up. The long shot gives a general view of the setting and the subject. The medium shot allows a closer view of the subject, eliminating unnecessary background and other details. The close-up concentrates on the subject or on a part of it, excluding everything else from view.

Variety, emphasis, and dramatic effect can be accomplished through the use of camera angles. A high angle shot gives the illusion of reducing the size of the subject and slowing its motion. A low-angle shot seems to exaggerate height and speed up movement. In most filming, the camera is in the position of the eyes of an observer; this is objective camera position. Often the camera is put in the position of the subject's eyes and records the performance of an operation or the behavior of an object as the subject sees it; this is subjective camera position. In this instance, the cameraman shoots over the subject's shoulder.

There is a variety of filming shots at your disposal. Remember:

- Use a variety of shots purposefully.
- Change angle between shots of the same subject.
- Shoot scenes slightly longer than actually needed; the extra frames will be helpful when editing.
- Use graph paper beneath transparencies to insure straight lines.
- Lettering may be added to transparencies by using adhesive letters or pressure transfer letters.
- Add color to transparencies with color adhesive film. Coloring in large areas with felt pens is usually not satisfactory.
- Add interest to printed acetates by adding strips or diagonal colored areas with rainbow film. This is not adhesive and must be taped to edges of transparency or to the frame.

SIMULATION

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Introduction

This guide deals with the driving simulation phase of driver education. It is designed to be used in conjunction with the printed materials which accompany the simulation equipment. This guide supplements those printed materials and provides added learning, perceptual, and skill development activities. As the teacher, you are encouraged to do more than show films. Get involved with the learning situation. The intention is to integrate the simulation phase with the classroom and behind-the-wheel phases of the driver education program, to make the best learning environment possible for the students.

Definition: What Is the Driving Simulator?[2]

"The driving simulator is a laboratory device designed to assist the student driver in acquiring the necessary procedural, perceptual, judgmental, and decision-making skills for safe driving; analogous in purpose to a Link trainer used to teach airline pilots.

The driving simulator mode is an instructional method in the laboratory phase of driver education which provides group student learning experiences which, in turn, permit individuals to operate vehicle controls in response to filmed traffic scenes that include emergency driving situations. A combination of audiovisual packages and electromechanical equipment provides for student responses and evaluation pertaining to basic operating procedures and to perceptual, judgmental, and decision-making performances."

[2] *Safety Education Dictionary of Terms* (Washington, D.C.: American Driver and Traffic Safety Education Association, 1979), with Permission.

Simulation: Advantages and Disadvantages

Advantages

1. Provides practice under simulated adverse conditions.
2. Provides a wider range of driving environments.
3. Reduces time in the car for familiarization with the vehicle.
4. Leads to more dynamic instruction.
5. Provides the same exposure for all students.
6. Reduces per-student cost.
7. Introduces emergency driving techniques.
8. Strengthens visual perceptual development.
9. Enables the school to schedule greater number of students simultaneously.
10. Provides explanation and experiences that reinforce and expand those provided in other areas of the driver education program.
11. Aids in the development of good driving attitude by demonstrating safe, courteous driving practices.
12. Allows the student to respond appropriately to the situation that confronts him or her on the screen.
13. Provides practice in starting, stopping, lane changing.
14. Requires students to make their own decisions.
15. Provides the students with the information to correct improper decisions while the situation still confronts them.
16. Reduces the overall use of gasoline in the laboratory phase by reducing in-car hours.
17. Develops habits of anticipation and response to potential hazard.
18. Helps make on-street driving more meaningful.

Disadvantages

1. Initial cost is high.
2. Instructor could become a mere projectionist.
3. Mechanical equipment may break down.
4. Little kinesthetic learning.
5. Lack of realism limits learning.
6. Difficulty in supervising a number of students at one time.
7. Limited use of other teaching methods to enhance learning.
8. Tendency to overestimate skill development as opposed to the primary objective of simulator system use, the development of perceptual and visual skill.

Purpose of the Simulator

The driving simulator can

- Provide explanations and experiences that will reinforce and expand on those provided in other phases of the driver education program.
- Provide students with a greater variety of learning experiences.
- Provide learning opportunities in a nonthreatening environment through a developmental learning sequence.
- Develop basic visual habits.
- Develop visual perceptual abilities.
- Provide necessary sensory input for future judgment and decision making.
- Enhance knowledge and information required for safe operation of a motor vehicle.
- Develop appropriate behavioral response patterns to potentially hazardous situations.
- Provide more driving experience per hour of supervision.
- Enhance instruction; it does not replace the teacher or diminish his or her role.
- Aid in developing a good driving attitude by demonstrating safe courteous driving practices and by teaching students to respond to the situation in their simulators in a proper manner.
- Provide practice in performing procedures such as starting, stopping, lane changing, passing, hand-over-hand steering.
- Develop the understanding, judgment, and skill necessary to execute basic driving maneuvers safely and efficiently within typical traffic situations.
- Develop quick and accurate responses needed when faced with sudden unpredictable hazards.
- Evaluate student growth and development in the skills, judgment, and attitudes required for safe, efficient driving.

Using the Driving Simulator with Handicapped Students

The simulator can be used to evaluate the needs of those students with special driving problems. It can aid in the instruction of the mentally handicapped by providing students with safe, controlled practice on development of perceptual and basic skills. Care must be taken, however, to quickly correct any errors made. If these errors are allowed to become a part of the practice it will be extremely difficult to break the student of these habits later.

For physically handicapped students, the simulator can be an extremely valuable tool in teaching these students to drive. Students can become familiar with the equipment and its operation. Simulation also provides the opportunity to develop perceptual and basic manipulative skills. In addition, evaluation can be made of the kinds of adaptive equipment needed for these students.

Teachers and parents of handicapped students can assess the capabilities of these students as they relate to the actual driving task. They can observe the students' responses to the varied situations which the simulator films present.

The Ohio Department of Education's guide[3] on teaching the handicapped to drive gives suggestions which can be applied to the simulator phase of the driver education program.

[3]*Driver Education for the Handicapped (Columbus, Ohio: Ohio Department of Education, 1979).*

Establishing a Simulation Program

When considering the establishment of a simulation program to be offered at your school, remember to consider the following:

- Standards for driver education programs in the State of Ohio
- Program budget
- School size
- Teacher availability
- Facilities and equipment

In making the decision to provide a simulation program, the following are suggested:

1. Know the types of facilities available.
   a. Classroom: The simulator is installed in the classroom. This is the ideal set-up and requires a large classroom.
   b. Portable classroom.
   c. Trailer or mobile classroom: Several schools can use this type.
   d. Mobilab: It is similar to a bus, can be driven from one school to another, is self-contained, and has its own generating plant to provide heat and air conditioning.
2. Know the methods of purchase.
   a. Competitive bids
   b. Lease-purchase: The school pays the company for a number of years (usually five) for the use of the equipment. At the end of the time period the equipment is paid for and belongs to the school.
   c. Lease: Individual lease arrangements are made for the use of the equipment.
3. Visit various types of programs and discuss each simulation program with administrators, teachers, and students.
4. Work out a variety of schedules; include additional areas such as adult or special education programs.
5. Have companies prepare a cost analysis.
6. Prepare a list of specifications, including a penalty clause for late installations.
7. Be aware of the different kinds of maintenance arrangements offered by each company.

Moving the Simulator Trailer

Some of the problems of moving the simulator trailer unit can be eliminated if the following hints are taken into consideration. The first time a trailer is moved or if it is to be moved infrequently, consider using a professional moving company. Choosing one that has experience with moving house trailers can alleviate many problems. The company will be familiar with city and state laws which pertain to the move, as well as with necessary permits and licenses. It may be difficult to position the trailer on the selected site. Having professionals conduct the initial move may make future moves easier.

If you choose to move the trailer yourself, think about the following:

- Use a school bus wrecker, if possible.
- Check laws, regulations, permits, and licensing related to transporting vehicles of this type.
- Check for any oversize load signs, flags, or orange flashers that may be needed.
- Secure all inside equipment:
  a. Projectors (seatbelt around them)
  b. Control panel
  c. Chairs or loose items
  d. Clocks
  e. Screen
  f. Steps
- Turn off the main circuit breaker in the building and simulator before disconnecting.
- If there is a pole support for the electric cord remove and secure inside trailer.

When installing the trailer again, consider:

- Path of travel for the students
- Power source (possible combination with shop areas)
- Surface (a hard surface is best)
- Jacks (They may permanently mark new blacktop.)
- Fire marshalls (Consult the fire marshall before installation.)
- Electrician (Contact an electrician if a new hookup is needed.)

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- Railroad ties one foot long (Use these under jacks and the hydraulic jack, if needed.)
- Steps to the simulator (Secure these properly.)
- Placement of jacks

There is a variety of considerations that are thought of as common sense when moving the trailer. Many of these can only be learned by experience. However, it would be to your advantage to contact others who have performed the move themselves in order to gain some helpful tips.

Preventive Maintenance

A preventive maintenance or service contract may be obtained from the manufacturer of the simulator. However, consider these alternatives which may be more economical or feasible when establishing a preventive maintenance program.

1. Request bids from simulator service companies and accept the lowest and most responsible bid.
2. Include a regular maintenance program in the purchase agreement. A maintenance person would check the installation periodically.
3. Make arrangements with the company to acquire its services as needed rather than on a regular basis.
4. Enroll a school electrician in a simulator maintenance course provided by the company.

To ensure proper care of the simulator, the instructor can:

1. Keep a record of all problems for the regular maintenance man.
2. Be sure equipment is not misused by instructors or students.
3. Establish cleaning arrangements with the custodial staff.
4. Determine preventive maintenance services that the instructor can handle.
5. Be present during maintenance check.
6. Comply with fire regulations (fire extinguisher, exit light).

To take care of the projector:

1. Have a yearly check and cleaning.
2. Keep the back gate clear by brushing it at the end of each day; a small paintbrush will keep the dust and dirt from scratching the film.
3. Keep the lens clean.
4. Know how to replace both the projector bulb and the exciter lamp. Have spare bulbs on hand at all times.
5. If possible, arrange for a spare projector in case something should happen to the regular projector.
6. Keep a record of projector performance and maintenance needs for reference.

To use the projector and take proper care of film:

1. Know how to thread film properly.
2. Use tape to attach film to reel.
3. Clean the film and rejuvenate the emulsion at least once a year.
4. Clean the film after using each day by rewinding through a film cleaning cloth.
5. Be sure the film is rewound tightly.
6. Never leave the film threaded in the projector for any length of time.
7. Have the simulation film repaired only by someone who knows how.
8. Store film in a dust-free cabinet when not in use.

Role of the Teacher in Simulation

The success of a driving simulation program lies with the teacher. The teacher's knowledge and understanding and attitude toward simulation will in a large measure determine the value of a program. With a comprehensive background in simulation, the teacher should understand the learning theory and be prepared to use those methods and techniques which best meet the needs of the students and the program.

A good simulator instructor will:

1. Demonstrate a positive belief in simulation.
2. Recognize that the simulator is an aid to teaching, not a replacement for teaching.
3. Undertake comprehensive advance lesson preparation.
4. Plan and organize lessons to related course objectives.
5. Use innovative resources and materials in order to broaden the scope of basic instruction.
6. Evaluate course objectives and standards on a continuous basis. The results can be used as a basis for improving instruction.

Instructing with the Driving Simulator

Experiment with various presentations in order to develop the method that best accomplishes program objectives and enhances learning for the student.

The following are suggestions for developing a presentation.

- Know the film. Preview each film. It is suggested that the teacher drive through the film to become thoroughly familiar with its content.
- Know the equipment. Be familiar with the teacher's console and the various ways it may be used effectively. Be familiar with the scoring system, projectors, and preventive maintenance procedures.
- Plan. It is the key to success.
- Introduce students to the simulator. This can be accomplished in the classroom phase. Simulator units will not be a distraction. Administration and class organization are the areas which might be best covered at this time.
- Plan discussions. Each film should be introduced with an explanation of its content. During a film some discussion may be appropriate. Stop only at the end of major sequences. Follow each film with a discussion.

- Drill. This may be helpful in developing students' habits. Demonstration drills can be used. A teacher or a student demonstrates a procedure and the students follow the directions.
- Mark films or film reels. Mark these so that they may be used in their entirety or in part.
- Use a flashlight pointer. A flashlight pointer can be used to identify key situations or areas on the screen.
- Stop the film. Do this to clarify a problem area but do not overdo it.
- Show the film. Show the film twice, allowing for discussion at different points.
- Use still frames. This differs slightly from the stop-film action in that a particular scene is "frozen" on the screen so that the teacher may expand verbally on a particular concept, principle, or point needing emphasis.
- Use film loops. Make film loops from old simulator films and use repeatedly for additional practice.
- Make verbal comments. Comment to direct attention to certain points. However, discretion should be used; talking at the wrong time can be distracting and cause a student to respond incorrectly to an on-screen situation.
- Turn off sound. Allow the students to drive through the film while the sound is turned off. This forces the students to follow the film without verbal direction.
- Use filmstrips or slides. Use these to illustrate difficult concepts. They may be used before, during, or after a film lesson presentation.
- Use supplemental films. Be careful to select only those films which are compatible with the lesson content and objectives.
- Move about the room. Circulate among the students to identify those who are having problems.
- Use commentary driving. Students can be asked to state their thoughts orally as they drive through the film.
- Plan discussions with your peers. Discuss your ideas and plans with experienced simulation teachers.

Suggestions for Effective Teaching

The following suggestions can aid in providing an effective learning situation. Although many are obvious to most teachers, you might wish to check off those that you use. If you find that you are not using all of them, then ask yourself why not.

1. Clarify what you want to teach first. Make your objectives clear.
2. Be prepared; know your subject; be enthusiastic; believe in what you teach.
3. Organize materials in a meaningful way.
4. Integrate the materials into other courses in the school, into co-curricular activities, and into student activities at home and in the community.
5. Emphasize the positive aspects of driver education.
6. Plan carefully and continuously in order to make the best use of time and available facilities.
7. Have clearly in mind the objectives for each presentation. Develop a plan to assure achievement of objectives.
8. Use a variety of techniques; plan and select carefully.
9. Plan each presentation with the objective of getting maximum student participation.
10. Encourage group discussion and questions.
11. Limit the ideas presented each period. The human mind can grasp but a few things at a time.
12. Guard against chronic underestimates of the time required for students to grasp a given topic.
13. Teach students how to find answers.
14. Make the presentation fit the length of the class periods.
15. Make sure the material presented is clear and well illustrated, appealing to as many of the senses as possible.
16. Support lectures by use of the blackboard, flannelboard, projectors, tape records, and other visual aids. Remember that just showing a picture is not enough.
17. Use stories or examples that are within the experiences of students to support generalized statements.

18. Use resource persons with special competencies to enhance presentations.

19. Employ various ways of evaluating the progress of each student, both in group practices and individual situations.

20. Encourage students to use what has been learned in order to insure retention and transfer of learning.

21. Be friendly and respect students as persons.

22. Consider individual differences.

23. Limit the time spent on sharing your past experiences.

24. Avoid mannerisms which are distracting to the class.

25. Keep out distracting noises as much as possible.

26. Quickly learn the names and faces of the students (or the back of their heads from the control panel).

27. Have a sense of humor. It can serve a useful purpose.

28. Avoid the natural tendency to lower your voice at the end of a sentence.

29. Consider the comfort of the students.

30. Start and stop all classes on time.

31. Agree with the instructors of the different phases of the program on the approaches to be used with each activity.

32. Coordinate the classroom lessons with the in-car phases of the program.

Lesson Plan Suggestions

The following suggested lesson plans may be used to accompany or enhance the simulator films and package programs. They are organized to include:

- Related Simulation Films (where applicable)
- Task
- Objective
- Supplemental Student Activities
- Teacher Performances
- Handouts[4] (See Range Unit for diagrams.)

Evaluation of each lesson might include all or any combination of the following:

1. Teacher's direct observation of the students' response and performance
2. Tests (written and oral)
3. Oral drill
4. Worksheets
5. Print-out sheets
6. Computer console

The lessons are designed to accompany a variety of simulator films. Other simulation films which may be available on a specific topic are also identified. The instructor is encouraged to preview other films which might be more applicable to the topic of instruction. Again, the instructor is the important element. Simulation is not a film festival.

[4]Handouts included in the simulation guide were taken from materials developed at the Advanced Workshop on Simulation conducted at Bowling Green State University, 1974

LESSON I: Driving Simulator Rules and Regulations

Task

To become aware of the importance of the rules and regulations which must be followed in the driving simulation program and understand the consequences of not following the rules.

Objective

After receiving instruction on the rules and regulations of the driving simulation program, students will:

1. List all the rules of the driving simulation program that appear on the handout.
2. Express orally or in writing one possible consequence of not following each rule.
3. Follow all the rules of the program during each simulation session.

Supplemental Student Activities	Teacher Performances
1. Learn the following rules and regulations.	
A. Be at class and in the proper seat on time.	Prepare a ditto sheet of rules for each student.
B. No smoking, drinking, eating, or gum chewing in the driving simulator.	Discuss the reasons for the rules.
C. No misuse of the equipment or housing unit.	Reinforce rules verbally as they are followed.
D. Do only those things you have been instructed to do.	Question students on the reasons for adhering to a specific rule.
E. Do not touch or move anything unless instructed to do so by the instructor or the film.	
F. No horseplay.	
G. Never carry any combs or sharp objects in the rear pocket; they can tear the seat.	
H. Wear seatbelts in the simulator unit.	Stress the use of seatbelts and check for strict adherence to rule.

Supplemental Student Activities	Teacher Performances
I. Never force any apparatus. Call the instructor for help.	
J. You will be assigned a car in the simulator unit. You will be responsible for any missing item on your car; therefore, when entering the car, check it and immediately inform the instructor if your car has some missing item.	Discuss with students how assuming responsibility relates to driving.
K. Obey the attendance rule.	
2. Recite and write at least one consequence for each rule or regulation violated.	Discuss the consequences of violating any rules. Example: Removing a student from a lesson or the program for the violation of a rule. Note: The teacher must follow through on all consequences and must be consistent.
3. Follow the rules and regulations of the program without committing any violations.	Suggestion: The doors to the simulator should be locked unless the instructor is present.

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Student Rules and Regulations for Simulation

- Be at class and in the proper seat on time.
- No smoking, drinking, eating, or gum chewing in the driving simulator.
- No misuse of the equipment or housing unit.
- Do only those things you have been instructed to do.
- Do not touch or move anything unless instructed to do so by the instructor or the film.
- No horseplay.
- Never carry any combs in the rear pocket; they can tear the seat.
- Wear seatbelts in the simulator unit.
- Never force any apparatus. Call the instructor for help.
- You will be assigned a car in the simulator unit. You will be responsible for any missing item on your car; therefore, when entering the car, check it out, and immediately inform the instructor if your car has some missing item.
- Obey the attendance rule.

Consequences

If any violations are committed, it may mean your dismissal from the program.

LESSON II: Driving Simulator Car Orientation

Task

To become familiar with the basic controls of the driving simulator unit.

Objective

Following instructions on the basic controls and gauges of the driving simulator unit, students will:

1. Name all the basic controls and gauges that appear on the handout.
2. Correctly describe the functions of the basic controls and gauges on the handout and indicate how their function or malfunction might relate to future onroad and range driving situations.

Supplemental Student Activities	Teacher Performances
1. Locate and name the basic controls and gauges on the simulator unit.	Prepare ditto sheets on the control and gauges. Have students learn the itemized diagram of parts on the driving simulator unit.
2. Demonstrate use of the basic controls and gauges on the simulator.	Discuss and demonstrate the location and use of all the controls and gauges.
3. Locate and explain various controls and gauges of the car.	Explain the function of the controls and gauges.
A. The instrument cluster	
1. Fuel gauge 2. Alternator light or gauge	In the simulator, have students demonstrate their ability to use the controls and gauges with ease.
3. Oil pressure warning light or gauge 4. Speedometer 5. Odometer 6. Temperature gauge or light 7. Brake-system warning light	Explain the action students would take if these lights or gauges indicate a problem. Explain to students that the speedometer will not operate when the brake is engaged.

Supplemental Student Activities	Teacher Performances
B. Components for safety and comfort	
1. Light switch	Discuss lights, bright and dim, and the proper use of both; dome and dashboard.
2. Headlight switch and indicator	
3. Turn signal and indicator	
4. Emergency flasher control	List situations when these various lights should be used.
5. Inside and outside mirrors	Explain that the mirrors will show up on the screen.
6. Mirrors on the back of the seat	Explain that these mirrors are for driving in reverse.
7. Horn	Discuss the appropriate times for using the horn.
8. Windshield wiper and washer	
9. Heater and defroster	
10. Seat adjustment lever	
11. Safety belts	Stress that safety belts are to be worn at all times.
12. Head restraints	Explain that head restraints must be properly adjusted for safety and explain the consequences of incorrect adjustment.
C. Controls used in driving	
1. Ignition and starter switch (ACC, lock, off, on, start)	
2. Accelerator	Tip: The computer operates from the accelerator before speedometer reacts.
3. Foot brake	Drill students on the braking procedure: braking less, more. Soft brake to stop; medium brake to hold the stopped car.
4. Clutch pedal	Drill students on braking skills using the computer.
5. Steering wheel	Demonstrate proper hand position (9-3). Use your shadow on the screen to demonstrate.

Supplemental Student Activities	Teacher Performances
6. Parking brake 7. Manual shift lever 8. Selector lever (park, reverse, neutral, drive, low 1, 2)	Discuss the needs for various gears. Discuss, drill, and demonstrate the following: a. Steering procedures (too far left, too far right). b. Accelerator procedures (speed up, slow down). Explain the computer evaluation process for grading students; e.g., the pressure on the accelerator indicates the speed rather than the speedometer reading.

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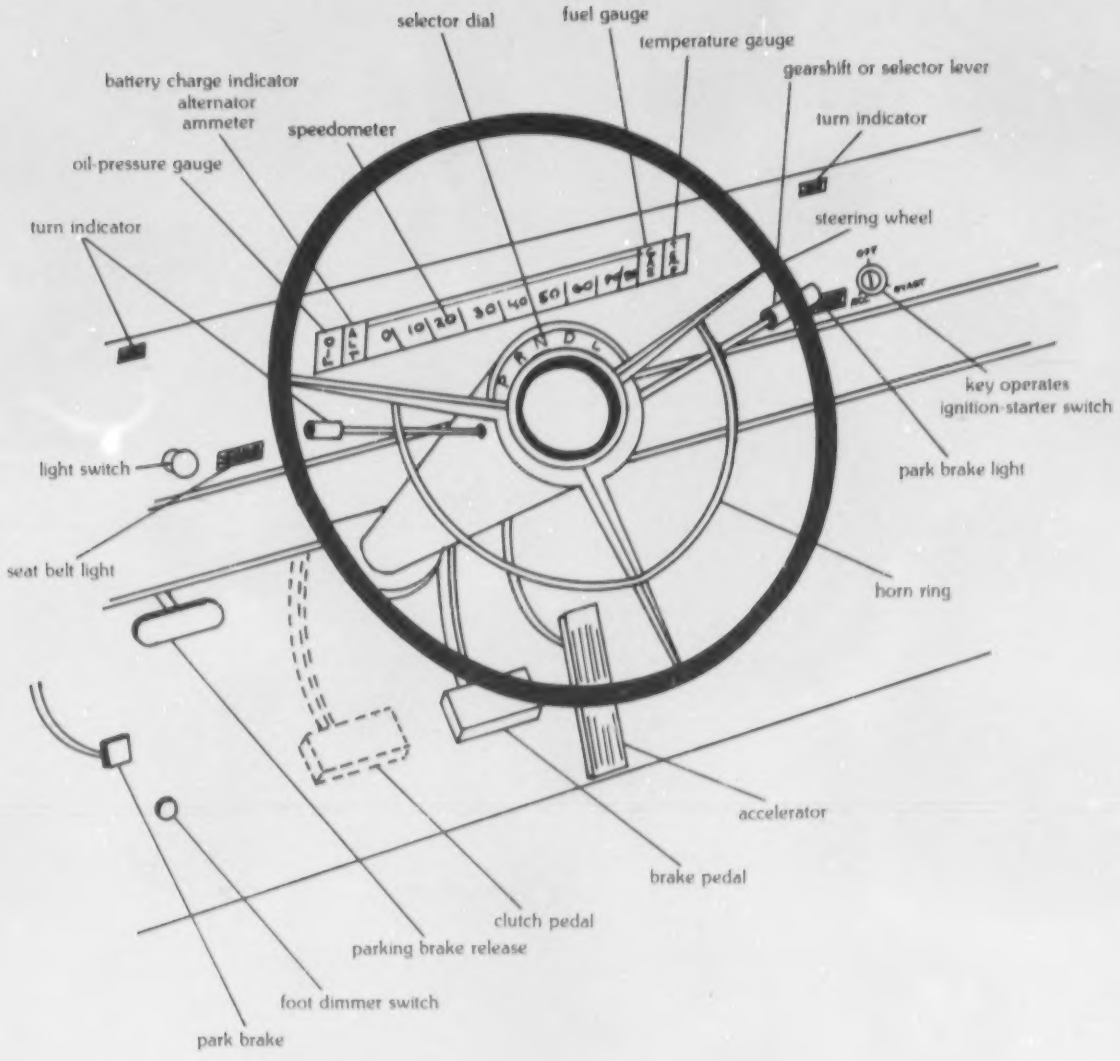
Typical Instrument Panel



The Function and Appropriate Use of the Gear Options

1. **(P) - Park**

   The transmission gears are disengaged and the driveshaft and rear wheels are locked so that they cannot turn. The engine should be started in this position in most cases.

2. **(R) - Reverse**

   This position is used for backing the car. On most cars, it is necessary to lift the lever slightly toward you in order to move it into the reverse position.

3. **(N) - Neutral**

   The engine is disengaged from the wheels. The engine can also be started in this position. Two uses of this gear are for towing or pushing a car and starting the car while in motion.

4. **(D) - Drive**

   Most forward driving is done in this position. The lever is moved to "D" after you start the engine and are about to drive the car forward. The engine cannot be started while the lever is in this position. Remember this if you suddenly find that your starter doesn't work.

5. **(L) - Low**

   Low gear is used for maximum power at slow speeds, as when driving in mud or sand, for climbing very steep grades, or for assisting brakes to hold the car back when driving down a long, steep hill. In the (L) position, no automatic change of gear will occur. Also used to pull heavy loads.

LESSON III: Basic Maneuvers

Related Simulation Films

Introduction to Simulation
Basic Control Tasks
You and D.O.T. System
Let's Start Driving
Identifying and Predicting

Task

To learn the prescribed safe and efficient procedures for entering and starting the car, putting the car in motion, simple roadside parking, and securing the automatic shift car. To give students an insight into IPDE principles.

Objective

As a result of the teacher's instructions and viewing the related simulation film, students will:

1. Demonstrate, while driving according to the simulation film, the ability to perform the basic maneuvers listed in this task.
2. Define the four principles of the IPDE system and give an example of how each might relate to future driving on the driving range and road.
3. Demonstrate the use of correct visual habits while driving as explained by the instructor and film; give an example of one possible use for each when driving on the driving range or road.

Supplemental Student Activities	Teacher Performances
1. Explain and demonstrate the proper techniques for performing the basic maneuvers using the following steps. A. Get ready to drive. 1. Check the exterior area of the car. 2. Enter from the curb side with caution. 3. Check to be sure doors are secure and locked. 4. Adjust the seat.	Prepare dittos on the basic maneuvers. Demonstrate the basic maneuvers and have students perform steps at a slowed pace without the film. Question students on what they may be looking for; e.g., something under wheels, child behind car. Explain that one can become a traffic hazard when entering from driver's side.

Supplemental Student Activities	Teacher Performances
5. Adjust mirrors.	Reemphasize that the mirrors are adjusted in the movie. The mirrors on the simulator unit are for driving in reverse.
6. Fasten seatbelts.	Demonstrate the correct procedure for wearing seatbelts. Check to be sure students are wearing seatbelts properly.
B. Start the engine.	
1. Check to be sure parking brake is on.	Point out that the reason for using the parking brake is to keep the car from unnecessary movement.
2. Check to see that the gear selection lever is in park.	
3. Accelerate slightly.	
4. Turn ignition key and starter on.	
5. As soon as the engine starts, release accelerator and hold foot brake firmly.	Explain that moving the foot to the brake prepares the driver to hold the car still while shifting to the next gear.
6. Check instrument panel.	Point out that if lights in the instrument panel indicate that the car has stalled, the starting procedure must be repeated.
C. Move away from the curb in the following manner:	
1. Holding the foot brake firmly, shift to drive.	
2. Release the parking brake.	
3. Check the mirrors for traffic.	Explain that checking traffic in the mirrors is not sufficient. Always check over the shoulder (head check) as well.
4. If it is clear, turn on left directional signal.	
5. Check traffic by glancing back over left shoulder.	
6. Accelerate gently.	
7. Glance left again.	
8. Steer slightly left and slightly right, positioning the car into the right lane.	Demonstrate the amount of movement required to make a slight right and left turn.
9. Check to be sure directional signal is off.	
10. Accelerate smoothly to driving speed.	Emphasize smooth acceleration.

Supplemental Student Activities	Teacher Performances
D. Handle the steering wheel with a firm (not tight) grip. Hands should be at the 9 and 3 positions.	Explain to students the reason for the 9 and 3 position.
E. Identify and respond to potential hazards as directed by instructor.	Review briefly the IPDE principles with students. Use the film, stopping it at preplanned intervals, to discuss potential hazards. Help students develop IPDE skills.
F. Stop at the curb in this manner. 1. Check mirrors.	Emphasize that this step should be followed periodically, especially when beginning to make a change of maneuver.
2. Turn on the right directional signal. 3. Brake gently, increasing pressure as needed.	Note: Hand signals can also be used if it seems necessary.
4. Release pressure slightly on brake just before forward motion stops, then resume firm pressure.	Explain that this step helps to control "jerky" stops.
G. Secure the car in this manner. 1. Shift to park gear. 2. Turn off ignition. 3. Set the parking brake.	
2. During the film, check for: A. Obstruction B. Children C. Conflicts behind, in front, from side D. Search for road changes. 1. Other traffic 2. Traffic lane 3. Traffic signals 4. Traffic conflicts	Stop the film to discuss blind spots, potential dangers. If students need more practice, mark film reel with tape in the section to be used.

LESSON III STUDENT HANDOUT

Driver Objectives

A. Get ready to drive according to these steps.

1. Check around car.
2. Check and lock doors.
3. Adjust seat.
4. Adjust mirrors.
5. Fasten seat belt.

B. Start engine (automatic shift) using these steps.

1. Check to see if the parking brake is "on."
2. Check gear selector lever for park position.
3. Accelerate slightly.
4. Turn ignition key and starter "on."
5. As soon as engine starts hold foot brake firmly.
6. Check instrument panel.

C. Move away from the curb in this manner.

1. Holding foot brake firmly, shift to drive gear.
2. Release parking brake.
3. Check mirrors.
4. Turn on left directional signal.
5. Look back over left shoulder.
6. Accelerate gently.
7. Glance left.
8. Steer into right lane.
9. Check directional signal "off."

D. Handle the steering wheel with a firm (not tight) grip, hands at approximately the "9 and 3" position.

E. Stop at the curb in this manner.

1. Check mirrors.
2. Turn on right directional signal.
3. Brake gently, increasing pressure as needed.
4. Steer right along curb.

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LESSON III STUDENT HANDOUT

5. Release pressure slightly on brake just before forward motion stops, then resume firm pressure.
6. Turn off directional signal.

F. Secure the car in this manner.
1. Shift to park gear.
2. Turn ignition "off."
3. Remove key.
4. Set the park brake "on."
5. Move seat all the way back.
6. Position seat belts across seat.
7. Place key on special board made for this purpose.

LESSON IV: Turning Maneuvers

Related Simulation Films

Fundamental Turning Maneuvers
Drive in Automatic Shift Car
The Art of Turning
The Good Turn
IPDE (Introductory film)

Task

To become familiar with basic turning skills in order to execute proper lane changes and right and left turns with emphasis on maintaining a space cushion and making necessary turning adjustments.

Objective

Using the information acquired during previous lessons and this instruction, students, while driving in the simulator according to the appropriate simulation film, will:

1. Demonstrate (as a review activity) correct driving performance in basic maneuvers.
2. Demonstrate proper lane changes and right and left turns according to the traffic conditions.
3. Demonstrate avoidance of traffic conflicts and take defensive actions when necessary.
4. Demonstrate the use of perceptual skills.

Supplemental Student Activities	Teacher Performances
1. Start and leave the curb according to the procedures learned in the previous lesson.	
2. Make lane changes using the following steps:	Draw diagrams of lane changes on the chalk boards.
A. Glance.	Drill students on the arm signals.
B. Check mirrors.	
C. Glance over shoulder in the direction you wish to move.	
D. Signal.	

Supplemental Student Activities	Teacher Performances
E. Steer slightly. F. Steer to the center. G. Cancel signal.	Note: Direction of the steering depends on the direction of the lane change.
3. Make right and left turns. A. Prepare for turn by checking traffic and positioning car in proper lane. B. Signal your intention to turn. C. Check traffic using the mirrors and looking to your right and left. D. Brake gently. E. Begin turning. F. Look well up the street while you are turning. G. Accelerate slightly and unwind steering wheel.	Prepare a handout on right and left turn procedures and one on lane changes. Drill the students by oral command and manual operation of the console display panels. Explain that left turns may pose special problems: a. Crossing traffic lanes. b. Yielding to other traffic.
4. Use the principles of space cushion driving when manipulating the simulator unit.	Note: Students may be questioned on how the simulator films demonstrate this principle of safe driving.

LESSON IV STUDENT HANDOUT

Right and Left Turns

A. Make right turns according to this procedure.

1. Check mirrors.
2. Use right directional signal.
3. Glance right.
4. Steer slightly to the right, positioning car close to the curb.
5. Brake gently to 10 mph.
6. Check traffic left and right.
7. Steer hand over hand.
8. Accelerate gently when two-thirds way through turn.
9. Enter right hand traffic lane and straighten.
10. Check that directional signal is off.

B. Make left turns in this manner:

1. Check mirrors.
2. Use left directional signal.
3. Glance left.
4. Steer slightly to the left positioning car close to center line.
5. Brake gently to 10 mph.
6. Check traffic left and right.
7. Steer hand over hand.
8. Accelerate when two-thirds way through turn.
9. Straighten into lane nearest center line.
10. Check that directional signal is off.

LESSON V: Driving in Traffic

Related Simulation Films

Interacting with Traffic
Blending in Traffic
Intermediate Traffic
Traffic Strategy
Moderate Traffic
Advanced City Driving
Complex Traffic
Identifying Hazards
Separating and Compromise
Control IPDE Process
Mixing with Motorcycles

Task

To develop the understanding and judgment necessary to perceive cues to potential traffic hazards and to use appropriate defensive skills to avoid hazardous situations. To use visual cues to search, interpret, and respond to hazards of residential driving.

Objective

While receiving instruction and viewing simulation films related to traffic situations, students will:

1. Identify cues to potential traffic hazards and use appropriate defensive skills by manipulating their simulator units to avoid hazardous situations.

2. Point out two examples of potential traffic hazards contained in the film and relate them to possible on-road or range driving situations.

Supplemental Student Activities	Teacher Performances
1. Use scanning technique at intersections.	Prepare student handout on city driving.
A. Signs B. Cars C. Pedestrians D. Conflicts	Plan to stop film; show students how they can scan for dangers, especially at intersections.

Supplemental Student Activities	Teacher Performances
2. Demonstrate proper use of lanes. A. Thru traffic B. Left turns C. Right turns D. One-way streets E. Multiple lanes	Use magnetic board or chalk board to demonstrate correct procedures.
3. Develop an understanding of the flexibility of the danger zone and how to adjust speed and following distance accordingly.	Use charts of stopping distances to explain following distance.
4. Use the two-second rule for maintaining a safe following distance.	Explain the two-second rule to the students. Discuss the importance of maintaining this distance.
5. Demonstrate proper stopping procedures at intersections.	Review stopping procedure with students; e.g., at crosswalks, stop signs, lines.
6. Demonstrate an understanding of the rules for yielding.	Review the rules for yielding, such as when turning left or when emergency vehicles are involved.
7. Drive in multi-lane traffic in a safe manner.	Discuss the types of driving hazards encountered in congested shopping centers and the associated avoidance techniques.
8. Drive in heavily congested areas with due regard for safety.	Point out the driver's proper lane position in congested city traffic. Discuss stale and fresh traffic lights.
9. Understand reversible one-way street procedures and multi-lane intersections.	Mention the stopping position used by the simulator car. Discuss pedestrian problems.

LESSON V STUDENT HANDOUT

City Driving

Above all, drivers must be alert. They must learn to adapt their driving to the traffic environment. They must drive differently on crowded city streets than on limited-access superhighways. There is no single technique or style that is appropriate for all roads at any given time. Instead, an expert driver must be the master of a variety of techniques; in city driving, for example, slower speed, cooperation, and courtesy are the rule.

From the films, you will learn some of the basic techniques of city driving. You will learn which situations present the city driver with the greatest potential hazards. You will also learn which lane of traffic to use and how to drive on one-way streets.

I. Use your eyes and study the road ahead.

A. Study the roadway a full block ahead. If you notice that a light has been green for sometime, it is reasonable to expect the light to change so you will begin to slow down.

B. There is often a problem of judgment with regard to stop lights. Your judgment must be based on these points.

1. Is there a pedestrian or vehicle entering the intersection at such speed that it might collide with you if you keep going?

2. What would be the effect of the existing pavement conditions (perhaps wet, snowy or icy) if you were to brake hard?

3. At your present speed, can you stop without:

a. Entering well into the intersection?
b. Making a panic stop that may trigger a skid or collision involving drivers behind you?

4. Are there vehicles behind you which may hit you (or another) if you stop suddenly? If you can stop without danger, do so.

II. Remember the basic speed rule for intersections and city driving.

A. Never enter an intersection at a speed at which you could not stop before striking some suddenly appearing vehicle or pedestrian. The degree of visibility at that particular intersection at that moment should control your speed.

B. The danger zone of a car increases as the speed of the car increases. The danger zone is the distance in which a car can stop. If a car enters this danger zone, a driver may not be able to stop before hitting something. Speed and following distance must be adjusted to keep cars and pedestrians out of the danger zone. Following distance is one car length per every ten mph you are going or the two-second rule.

III. Understand the progressive signal system.

Some cities time their traffic lights so that if drivers maintain a certain speed, they will get all green lights through the city.

IV. Drive in your lane.

A. It is best if a driver picks one lane and stays in it. Of course, from time to time, the driver may have to change lanes. Changing lanes is potentially one of the most hazardous maneuvers a driver can make. Most states require that a driver signal lane change intention 100 feet ahead.

B. The lane in which a motorist drives is determined in large part by the number of lanes there are.

1. Two lanes in same direction

a. Right lane is for slow traffic and right turns; travel in right lanes unless going to pass (usually).
b. Left lane is for passing or left turns.

2. Three lanes in same direction

a. Right lane is for slow traffic and right turns.
b. Center lane is for through traffic.
c. Left lane is for passing or left turns.

C. Reversible lanes

At different times of the day, certain lanes become one-way in the opposite direction.

V. Stop at a through street.

A. Always stop behind the crosswalk or at a spot where a crosswalk would be. Stop behind the white line if one is present. If, after stopping, you cannot see from your position, move forward to a better visual advantage then stop again.

B. When entering a through street from a side street parking lot or driveway, stop at the sidewalk and street.

C. Yield: Treat a yield sign just like a stop sign until you can see both ways clearly. If no one is coming, proceed.

D. To enter traffic from a side street, find a "slot" (space between two cars) big enough to pull your car into traffic without interfering with the cars already there. Be ready when the "slot" appears.

VI. Right-of-way

A. Normally, the driver on the right has the right-of-way unless a sign indicates otherwise.

B. Remember also that the last chance to avoid an accident prevails; you cannot just run into a person.

C. If a car has turned left, partially in front of you or in your path, you should yield so that the driver can get the vehicle out of the way.

D. Always pull to the side of the road, slow down and stop, when you hear or see an emergency vehicle.

VII. To stop and start on uphill grades, use these steps.

A. Automatic shift

1. Soft brake
2. Medium brake
3. Park brake "on"
4. Accelerate slightly
5. Park brake "off"
6. Accelerate more

B. Manual shift

1. Soft brake
2. Clutch down
3. Medium brake
4. Shift to neutral
5. Clutch up
6. Park brake "on"
7. Clutch down
8. Shift to 1st gear
9. Accelerate slightly
10. Clutch to friction point
11. Park brake "off"
12. Clutch up

LESSON VI: Passing

Related Simulation Films

Making Space and Time
Perfect Passing

Task

To develop the judgment and skills necessary to cope with all probable situations for safe and efficient passing.

Objective

Given the opportunity to drive through the simulation films which relate to passing, students will:

1. Demonstrate the ability to differentiate between situations which provide the necessary time and clear distance to pass and those which threaten danger.
2. Demonstrate the ability to overtake and pass other vehicles presented in the film according to the basic procedures listed on the handout and practiced in this lesson.
3. Demonstrate IPDE skills by correctly reacting to special passing problems and the passing errors of vehicles presented in the film.

Supplemental Student Activities	Teacher Performances
1. Do not pass in such potentially hazardous locations as: A. Intersections B. Hills C. Curves D. Railroad crossings E. Approaching bridges, abutments, underpasses or other locations where assured clear distance is seriously threatened. 2. Anticipate the passing errors of others and yield to careless or inefficient passes.	Have students show or display concepts of time and distance.

Supplemental Student Activities	Teacher Performances
3. Compensate for the special problems created when passing large trucks or buses and allow an extra margin of safe clear distance ahead.	Use overheads, magnetic board, or a still frame to demonstrate the problems in passing and discuss the safety precautions to be used.
4. Practice the recommended procedural steps for overtaking and passing.	Prepare ditto sheet on passing.
A. Establish safe following distance ahead.	
B. Check assured clear distance ahead.	
C. Check traffic behind using inside and outside mirrors.	
D. Use left directional signal.	Discuss passing problems and experiences of the students and teachers.
E. Glance over left shoulder.	
F. Simultaneously accelerate, glance left, and steer into passing lane.	
G. Tap horn.	Repeat vital sections of the film.
H. Use right directional signal.	
I. Continue in passing lane until vehicle being passed is seen in inside mirror.	Discuss the responses of students.
J. Glance over right shoulder and give right-hand signal.	Demonstrate various passing situations on a magnetic board.
K. Return to right lane, turn directional signal off and adjust speed.	

LESSON VI STUDENT HANDOUT

Passing

Overtaking and passing on a two-lane roadway is the most dangerous of all car maneuvers. As a new driver, you need to learn all you can about it. Before you decide to pass ask yourself three questions: 1) Is it worthwhile to pass? 2) Is it legal? 3) Above all, is it safe?

Passing Distance Required (Minimum)	Your Speed (mph) 20	30	40	50	60	70
	Distance Needed for Passing (Feet)					
No oncoming traffic. Your speed 10 mph greater than car you are passing; you need	240'	480'	800'	1200'	1200'	2240'
Your speed 15 mph greater than car you are passing; you need	160'	320'	533'	800'	1200'	1493'
Oncoming traffic. Your speed 10 mph greater than car you are passing; you need	480'	960'	1600'	2400' about 4 blocks	3360'	4480' about 7 blocks
Your speed 15 mph greater than car you are passing; you need	320'	640'	1066'	1600'	2240'	2986'

I. Overtake and pass according to this procedure.

A. Establish safe following distance until passing is safe.

B. Check assured distance ahead.

C. Check traffic behind.

D. Use left directional signal.

E. Glance over left shoulder.

F. Simultaneously accelerate, glance left and steer into passing lane.

G. Tap horn.

LESSON VI STUDENT HANDOUT

H. Continue in passing lane until vehicle being passed is seen in inside mirror.

I. Use right directional signal.

J. Glance over right shoulder.

K. Return to right lane.

L. Turn directional signal off.

II. There are five situations in which passing is always prohibited (by common sense and generally by law) whether or not there are posted signs or markings.

A. No passing near crest of hill: Passing is not allowed for 700 to 1000 feet from the top of a hill. If you should pass, you would be in the lane belonging to oncoming cars, and you can't see them on the other side of the hill.

B. No passing on blind curves: You would be in the lane belonging to oncoming cars. On a blind curve you would not be able to see other cars. Always stay in your lane on any curve, out of the way of oncoming traffic.

C. No passing at intersections: It is generally illegal to pass within 100 feet of an intersection.

D. No passing at railroad crossings: According to the Uniform Vehicle Code do not pass within 100 feet of railroad tracks. It is too difficult to watch for trains while passing.

E. No passing near a bridge or abutment: According to the Uniform Vehicle Code do not pass within 100 feet of a bridge or abutment that blocks a driver's view (which most of them do). A bridge or underpass may cut off a road shoulder in case some emergency arises.

F. No passing where a solid line or a double line is on your side of the road. Don't try to pass just before reaching a no-passing zone.

III. Responsibility in passing

A. The law places the responsibility on the driver of the passing car.

B. If the passing driver has signaled that he or she is about to pass, the driver being passed must not speed up until the pass is completed. If a crash were to occur, the driver being passed could be at fault.

LESSON VII: Highway Driving

Related Simulation Films

Cross, Join, Leaving
Hit the Highway
Safe Highway Driving

Task

To develop the knowledge, skills, and attitudes necessary to anticipate and successfully cope with problems encountered in highway driving.

Objective

While receiving instructions and driving according to the simulation film which relates to highway driving, students will demonstrate safe and proper control of the vehicle in order to follow all of the procedures for highway driving.

Supplemental Student Activities	Teacher Performances
1. Identify hazards.	Prepare a student handout dealing with safe highway driving.
2. Interpret road markings.	
3. Enter traffic.	
4. Negotiate unmarked intersections.	
5. Follow correct steps in passing and controlling speed.	Discuss problems inherent in highway driving.
6. Drive on rural roads.	
7. Observe procedures for stopping on rural gravel or unpaved roads.	Allow students to demonstrate highway hazards.
8. Follow procedure for identifying and passing slow moving vehicles.	

Supplemental Student Activities	Teacher Performances
9. Follow procedures for passing school buses. 10. Follow procedures when forced off the road. 11. Follow procedure for divided highway driving. 12. Negotiate turns in a proper manner. 13. Drive defensively in anticipation of highway hazards.	Review signs, road markings, how to pass, following distance, speed control, and going off the road.

LESSON VII STUDENT HANDOUT

Highway Driving

The major difference between driving in towns and cities and on open highways is that although there are fewer cars on the open highway, they are travelling at higher speeds. Your driving must take this greater speed into consideration. But speed is a relative matter. A posted speed of 55 mph may be dangerous if the road is slick or the visibility limited. Drivers must learn to adjust their speed up as well as down. Driving at 30 mph when the rest of the traffic is averaging 55 mph is equally hazardous.

Speed should also be adjusted in order to maintain a safe distance between you and the car ahead. The general rule is to allow at least one car length for every 10 mph of speed at which you are driving or follow the two-second rule. On high-speed highways, greater distance may be necessary. Learn to adjust speed to blend with the traffic and traffic situations.

I. Diminishing following distance

   A. Car passing your car

      1. Slow down to improve your following distance.
      2. Never drive so closely to the car ahead that another car can't pass you and pull in ahead of you. The law requires that you not follow another vehicle too closely.

   B. Vehicle in act of passing

      1. Do not speed up when a vehicle is passing you.
      2. Keep your speed constant or slow down a little.
      3. When a vehicle passing a car comes toward you, you must:
         1) Slow down to let the car return to its lane,
         2) Be alert for the car which may collide, head-on, with you. In this event, pull to the shoulder of the road and pump your brakes.

II. Curves

   A. Slow down before coming to curve.

   B. Accelerate when coming out of a curve.

III. Hill crest: Slow down when coming to crest of a hill; visual distance is reduced greatly.

IV. Unpaved roads

   A. Slow down on unpaved road because pebbles act like small bearings and reduce friction.

   B. Slow down when approaching intersections that are blind or are not protected by signs.

C. Slow down on unpaved roads. Dust from cars in front of you or coming toward you may hinder your vision.

V. Cyclists, pedestrians, animals

A. Always slow down when any are present because they are very unpredictable.

B. Always expect and be prepared for the worst.

VI. Roadside business area: Anytime you approach a number of cars parked along the side of a road or a business area, slow down because of the potential for possible conflicts.

VII. Construction area: Slow down because of possible conflicts resulting from heavy equipment, workers, holes.

LESSON VIII: Expressways

Related Simulation Films

Expressways
Expressways Are Different
Expressway Excellence

Task

To develop the skills and judgment necessary to cope with the unique problems and features of expressway traffic.

Objective

While viewing a simulation film and receiving instruction related to expressway driving, students will:

1. Demonstrate the correct procedures for merging and exiting expressways according to the steps listed in the lesson.
2. Recite and demonstrate the general rules for correct lane usage.

Supplemental Student Activities	Teacher Performances
	Supply students with the handout on expressways.
1. Merge and exit expressways according to procedures.	Use transparencies to show the different types of exits and entrances.
A. At entrances	Explain driving on an expressway. Use entrance drills, exit drills, and expressway driving drills.
1. Check blind spots.	
2. Signal.	
3. Control speed.	Drill students on the different skills necessary for safe expressway driving.
B. At exits	
1. Signal and check blind spots.	Draw diagrams of expressways and ramps on the board to discuss situations that will be encountered on the film.
2. Use the proper exit lane.	
3. Reduce speed when in the deacceleration lane.	
4. Watch for changes ahead, such as traffic lights, stop signs, or yield signs.	

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Supplemental Student Activities	Teacher Performances
C. At interchanges	
2. Recite the general rules for correct lane usage.	Use a demonstration to illustrate why backing on the expressway is illegal and unsafe.
A. Slower moving vehicles should use the right lane.	
B. Avoid conflicts with merging traffic by making the appropriate lane change.	
C. Use the left lane for passing.	
Demonstrate the lane usage rules during the simulation experience.	

LESSON VIII: STUDENT HANDOUT

Expressways

Limited access roads are known in various parts of the country by such names as expressways, turnpikes, parkways, freeways, or interstate highways. Regardless of what descriptive term is used, they all share certain common characteristics.

The most fundamental feature of such roads is the limited number of points of entrance and exit. Business establishments and residences abutting the roadway do not have immediate access to the road. Customers and residents must proceed to designated entrances and exits before entering or leaving the expressway.

Other engineering improvements include wider lanes, additional lanes for passing, easy curves, long gradual hills, clear wide shoulders, and uniform signs. Opposing traffic lanes are separated by wide medial grass strips, barriers, or fences. These types of separations serve to decrease head on collisions and limit blinding lights from oncoming traffic at night. Additionally it helps make these modern, high speed roadways comparatively safe.

A. Advantage of limited access highways

1. Fewer hazards
   a. Ditches
   b. Narrow
   c. Signs
   d. Things along the road
2. Ability to drive faster
3. Travel time reduced
4. Convenient
5. Economic
6. Safe

B. Before you drive on the expressway, remember:

1. You will be driving at higher speeds, which means your driving ability, judgment, thinking, and reaction time become very important. You must be in good physical and mental condition.
2. Your car must be in top notch shape.
   a. Keep tires in good condition (all 5 tires).
   b. Have a full tank of gas.
   c. Plan your trip stops for gas and food.

LESSON VIII STUDENT HANDOUT

d. Brakes: Have your brakes checked and adjusted regularly and certainly before any trips.

e. Mirrors: Cleaned and properly focused.

f. Oil, water, battery, lights: Go to a service station and get these items checked if you do not know how.

LESSON IX: Backing

Related Simulation Films

Backing Safely
In Reverse

Task

To become familiar with operating the car in reverse and to develop judgment necessary to execute the appropriate backing techniques in traffic situations.

Objective

While simulating driving in reverse students will:

1. Demonstrate proper body positioning when backing.
2. Demonstrate right and left turns while in reverse.

Supplemental Student Activities	Teacher Performances
1. Backing straight	Review where to look when backing.
A. Use proper body position.	
B. Use small steering movements.	Use the "still frame" to show students what is happening. Drill students on body position, braking, accelerating, and the use of the head and eyes while backing.
C. Control speed.	
2. Backing, making right turns	Discuss right and left backing differences.
A. Begin turning with left hand.	
B. Watch right rear and left front fenders.	
3. Backing, making left turns	Use charts to show direction of tires when the steering wheel is turned left and right.
A. Begin steering with right hand.	Use a model car with movable steering mechanism to explain and demonstrate the techniques of steering while backing.
B. Watch left rear and right front fenders.	

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Supplemental Student Activities	Teacher Performances
4. Backing from a driveway A. Stop at crosswalk. B. Stop at curb. C. Avoid backing across lanes of traffic. D. Back into nearest lane.	Explain how to use basic backing maneuvers for turning around safely in driveways and alleys.

LESSON X: Parking and Turning

Related Simulation Films

Angle Parking and Turning Maneuvers
ABC's of Parallel Parking
Parking
Special Driving Techniques
Special Maneuvers (Parking)

Task

To develop the skills and judgment necessary to enter and leave angle and parallel parking spaces and to execute U-turns and Y-turns safely.

Objective

While receiving instruction and viewing simulation films on parking and turning the car around, students will demonstrate the proper procedures for:

1. Angle parking
2. Parallel parking
3. U-turns
4. Y-turns

Supplemental Student Activities	Teacher Performances
1. Angle park by using the following steps.	Prepare handout sheets for angel parking, parallel parking, U-turns, and Y-turns.
A. Check traffic.	
B. Use right directional signal and hand signal at least 100 feet in advance.	
C. Slow to about five miles per hour and position car about five feet from parked cars on right.	Review speed controls, creeping drills, backing, braking, and steering.
D. When front wheels are near edge of space, steer full right into the space.	

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Supplemental Student Activities	Teacher Performances
E. Enter space slowly, straighten wheels and stop about one foot from curb.	Use "still frame" to refer to points of specific action.
F. Ease pressure on brake, allowing right front wheels to touch curb gently.	
2. Leave angle parking space by using these steps.	
A. Back slowly (to about a half car length) and stop to check traffic.	Discuss other methods of parking.
B. Resume backing and start turning slowly hand-over-hand to the right.	Discuss corrective measures for incorrect parking.
C. Face the front quickly to check bumper clearance, then turn full right.	
D. Back into right-hand traffic lane, straighten wheels and stop.	Discuss proper backing body position.
E. Face forward and drive ahead.	Point out the places of conflicts; e.g., right rear car beside you, right front of your car, rear bumper of your car, curb or front bumper of your car.
3. Parallel park according to the following procedures.	
A. Check mirrors.	
B. Use right directional signal and hand signal at least 100 feet in advance.	
C. Slow, ease right and stop parallel about two feet from car in front of the space, rear bumpers even.	Give examples of maneuvers on magnetic or chalk board.
D. Hold foot brake down, shift to reverse and look over right shoulder.	

Supplemental Student Activities	Teacher Performances
E. Check traffic, then back slowly, and steer full right. F. As car approaches 45 degree angle to curb, straighten wheels. G. Begin steering left as front bumper nears rear bumper of the car ahead. H. Face forward and check bumper clearance; when clear, face back and steer full left. I. As car approaches parallel to curb, straighten the wheels. J. Brake softly to stop before touching car behind. K. Holding foot brake down, face forward and shift. L. Move forward slowly and stop when car is centered in parking space. M. Holding the foot brake down, shift to park or reverse, turn off the engine and set parking brake; then release foot brake. 4. Leave a parallel parking space using these steps. A. Holding the foot brake down shift to reverse, release park brake, and face backward. B. Move straight backward and stop gently before touching the car behind. C. Holding the foot brake down, face forward and shift to drive. D. Check mirrors and turn on left directional signal.	Have students act through the proper steps for the maneuvers. Explain the angle.

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Supplemental Student Activities	Teacher Performances
E. Look back and give left directional signal.	
F. When clear, move forward slowly, steer full left and glance left.	Stress the use of proper traffic checks while making maneuvers.
G. As front bumper clears rear bumper of car ahead, straighten wheels.	
H. Steer medium to full right, into right hand travel lane.	
I. Straighten wheels and check directional signals off.	
5. Execute a U-turn by the following steps.	Discuss the safest way of turning a car around—simply make three right turns and one left.
A. Select a wide street with clear distance and little traffic.	
B. Check traffic.	
C. Use right directional signal, at least 100 feet in advance, pull over to right curb and stop.	
D. Check traffic.	
E. Use left directional signal, look back, use left-hand signal.	
F. Move forward slowly and quickly turn full left.	
G. Cover brake when approaching and until clear of opposite curb.	
H. Straighten into right-hand traffic lane.	
6. Execute a Y-turn by following these steps.	Stress traffic checks and signaling.
A. Select a location with adequate sight distance, little traffic and no obstruction.	Discuss the laws that prohibit U-turns or Y-turns.

Supplemental Student Activities	Teacher Performances
B. Check traffic. C. Use right directional signal, stop hand signal at least 100 feet in advance, pull over to the right curb and stop. D. Check traffic. E. Use left directional signal, look back, use left-hand signal. F. Move forward slowly and quickly turn left. G. When front wheels are about four feet from the opposite curb, turn right and stop before touching curb. H. Check traffic, shift to reverse, keep wheels to full right, back up. I. Face forward, check traffic, move ahead slowly. J. Quickly turn full left and then straighten into the right-hand traffic lane.	

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LESSON X STUDENT HANDOUT

Parking

A. Angle parking

1. To angle park use these steps.
   a. Check traffic.
   b. Use right directional signal at least 100 feet in advance.
   c. Slow to about five miles per hour and position car about five feet from parked cars on the right.
   d. When front wheel is opposite near edge of space, steer full right into the space.
   e. Enter space slowly, straighten wheels and stop about one foot from the curb.
   f. Ease pressure on brake allowing right front wheel to touch curb gently.

2. To leave angle parking space, use these steps.
   a. Back slowly about a half-car length and stop to check traffic.
   b. Resume backing slowly and start turning slowly hand-over-hand to the right.
   c. Face front quickly to check bumper clearance; then turn full right.
   d. Face forward and drive ahead.

B. Parallel parking

1. To parallel park, use these steps.
   a. Check mirrors.
   b. Use right directional signal at least 100 feet in advance.
   c. Slowly ease right and stop parallel about two feet from car in front of space, rear bumpers even.
   d. Hold foot brake down, shift to reverse, and look over right shoulder.
   e. Check traffic; then back slowly and steer full right.
   f. As car approaches 45 degree angle to curb, straighten wheels.
   g. Begin steering left as front bumper nears rear bumper of car ahead.
   h. Face forward to check bumper clearance; when clear, face back and steer full left.
   i. As car approaches parallel to curb, straighten wheels.
   j. Brake softly to stop before touching car behind.
   k. Holding foot brake down, face forward and shift.
   l. Move forward slowly and stop when car is centered in the stall.

2. To leave parallel parking space, use these steps.
   a. Holding the foot brake down, shift to reverse, release parking brake and face back.

LESSON X STUDENT HANDOUT

b. Move backward slowly and stop gently before touching the car behind.
c. Holding the foot brake down, face forward and shift.
d. Check mirrors and turn on left directional signal.
e. Look back over left shoulder.
f. When clear, move forward slowly; steer full left and glance left.
g. As front bumper clears rear bumper of car ahead, straighten wheels.
h. Steer medium to full right into right-hand travel lane.
i. Straighten wheels and check to see if directional signal is off.

3. Parking is prohibited in the following:
   a. Painted curb—usually yellow or red.
   b. On a sidewalk or a crosswalk.
   c. Within an intersection.
   d. In front of any driveway.
   e. On any bridge or in any tunnel.
   f. Within a specified distance of the corner, of stop signs, railroad crossings, fire hydrants, and safety zones.
   g. In front of a hotel entrance, theater entrance, or within twenty feet of a fire station.
   h. Anywhere in such a way as to obstruct traffic.
   i. Where only ten feet or less of the width of the roadway will be left open for clear movement of traffic.
   j. Beside a vehicle parked at the curb (double-parking).
   k. On the left side of any street that is not a one-way street.
   l. On any rural highway.

4. To find a parking space, check for:
   a. A driver unlocking the car door.
   b. A puff of smoke from the exhaust.
   c. A driver looking back to see what is coming.
   d. Wheels turned or being turned.

5. Common errors of parallel parking include:
   a. Stopping too close to the car ahead.
   b. Stopping too far from the car ahead.
   c. Failing to start turning the wheels to right as soon as the car starts moving backwards.

d. Failing to creep back slowly enough to permit time for steering the car into the proper position.

e. Getting your right front bumper so close to the rear of the car ahead that you cannot clear the car.

C. Use the following procedures when parking on hills:

1. To hold a car parked on a hill

a. Headed down hill with a curb

Park with your front wheels turned toward the curb. Stop alongside the curb, four to five inches from it. Then turn sharply to the right while moving slowly. Bring the right front wheels to touch the curb gently.

b. Headed down hill with no curb

Park down hill, leaving the front wheels turned to the right.

c. Headed up hill with no curb

Park with the front wheels turned to the right, as when headed down hill.

d. Headed up hill with a curb

Approach the parking space as if on level ground. Just before you stop, swing the wheels sharply to the left. Shift to neutral and roll back toward the curb slowly, braking as needed and still turning the wheel left. Stop as the back of the right front wheel comes in gentle contact with the curb.

2. To reinforce the parking brake

In an automatic shift car, place the selector lever in park. In a car with manual transmission, place the gear shift lever in reverse on either a down grade or an up grade.

LESSON X STUDENT HANDOUT

Turning Your Car Around

In many cases the best, safest, and often the quickest way to turn a car around is to make three right turns around the block followed by a left turn. However, on a dead-end street or in some other spots, you will have to turn the car around.

Some states prohibit certain turnabouts, so find out what the law is in your state.

Though this turn is the easiest one to execute, it is also the most dangerous because the whole street is used. Often this type of turn is prohibited by law. Pick a place that is not near a hill or curve which would hide you from the view of approaching drivers. In Ohio, how far does the law require you to be from an intersection to make a U-turn?

I. Execute a U-turn as follows:

a. Select a wide street with clear sight distance and little traffic.

b. Check traffic.

c. Use right directional signal at least 100 feet in advance.

d. Pull over to the right curb and stop.

e. Check traffic, left directional signal.

f. Look back over left shoulder.

g. Move forward slowly and quickly turn full left.

h. Cover brake when approaching and until clear of opposite curb.

i. Straighten into right-hand traffic lane.

II. Execute a Y-turn using these following steps. (This turn in executed under the same conditions as the U-turn, but on a street too narrow to permit a turnabout in one move.)

a. Select a location with adequate sight distance and little traffic.

b. Check traffic.

c. Right directional signal at least 100 feet in advance.

d. Pull over to the right curb and stop.

e. Check traffic, left directional signal.

f. Look back over left shoulder.

g. When front wheels are about four feet from opposite curb, turn right and stop before touching the curb.

h. Shift to reverse, check traffic and back slowly, turning the wheel full right.

i. When rear wheels are about four feet from the curb, begin turning left and stop before touching the curb.

j. Face forward, check traffic, turn full left into right traffic lane.

LESSON X STUDENT HANDOUT

III. Two-point turn

To turn into an alley or driveway on the left side of the street, drive forward into it and back out. If the alley is on the right-hand side of the street, it is much better to drive past the alley, back in, and drive forward, as you come back into the street. You can see traffic on the street much easier when your car is moving forward.

LESSON XI: Driving under Adverse Conditions

Related Simulation Films

Good Driving in Bad Weather
Winterproof Your Driving
Changing Weather Conditions

Task

To develop the understanding, judgment, and skill necessary to cope with the hazards of winter driving.

Objective

While receiving instructions and viewing an appropriate simulation film related to driving under adverse conditions, the student will correctly demonstrate the proper procedures for:

1. Preparing a car for driving.
2. Avoiding skids.
3. Handling skids.

Supplemental Student Activities	Teacher Performances
1. Minimize obstructions to adequate visibility by clearing the windshield, windows, mirrors, and exterior lights of snow, ice, or mud. Prevent interior condensation and fogging by providing adequate ventilation.	Prepare the handout sheet on driving under adverse conditions. Discuss what one should do on cold mornings before moving the car.
2. Avoid the risk of skidding on slippery surfaces by avoiding sudden changes in speed or directions in accordance with these techniques:	Discuss locked front wheels, having zero steering control, and low gear on inclines.
A. Accelerate very gently and gradually.	Discuss those portions of the film viewed by students.
B. Prepare to stop well in advance, thus allowing an extra cushion of safety.	Prepare a handout on reducing the risk of skids.

Supplemental Student Activities	Teacher Performances
C. Utilize the gradual braking action of engine compression by decelerating early and applying brakes gently, employing an easy pumping action.	
D. Adjust following distance to provide additional assured clear distance ahead should the vehicle in front stop unexpectedly.	
E. Keep speed well below the limits which apply under normal conditions.	
F. Keep constantly alert for cues to unusual or dangerous acts of other drivers and pedestrians and start defensive movements early.	
G. Increase frictional grip, when appropriate, through the use of chains, mud hooks, or snow tires.	
3. Handle skids using these steps:	
A. Steer in direction of skid.	
B. Release gas.	
C. Do not apply brakes.	Discuss skid film.
D. Reduce speed.	
E. Pump brakes.	
F. Hold road position.	Repeat important sections of the film.

LESSON XI STUDENT HANDOUT

Driving under Adverse Conditions

Alert drivers allow more time for driving in bad weather or for other adverse conditions. Under adverse conditions, it takes longer to execute most driving maneuvers.

I. What to do in bad weather

A. Listen for the weather forecast; also look outside for local conditions that might not be included in the weather report.

B. Allow extra time even for a short trip; slower driving and slower starts delay traffic.

C. Soon after you start, test your traction by gently accelerating and braking. If your wheels spin on a start, be aware that stopping also will be difficult.

D. Turn on your low-beam headlights in daytime; this will help others to see your car.

E. Check the surface of the road for frost, snow, ice or other hydroplaning conditions. Hydroplaning is a situation in which the car is riding on a sheet of water instead of pavement. Change the speed and placement of your vehicle where necessary.

F. Look farther ahead than usual for situations that could force you to slow down, stop or change lanes.

G. Keep enough space between your car and others to allow you to correct for skids.

H. Be alert for any indication of skidding; you can correct one the instant it starts.

II. Conditions that reduce visibility

A. Steam on windows: Open your window slightly or turn on air conditioner.

B. Dusk-Twilight: This is the time of deceptive illumination, not as light as day or as dark as night. Turn on low beam lights.

C. Looking into the sun: Driving toward the sun creates a very serious problem. Use your sun visors and sun glasses.

D. Fog: This is dangerous because of different densities. You may be going through light fog when all at once you are in a thick fog. Slow down and turn on low beam lights. Get off the road in heavy fog.

E. Rain and snow: Slow down and turn on windshield wipers and low beams.

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LESSON XI STUDENT HANDOUT

F. When driving at night, look out for

1. Cars driven in some irregular way; the driver may be under the influence of alcohol or other drugs.
2. Drivers who leave a brightly lighted parking lot and drive without turning on their headlights.
3. Bicycles or even motorcycles without headlights, tail lights, or reflectors.
4. Pedestrians in dark clothing, perhaps walking on your side of the street or road or stepping out from between parked cars.
5. Deep chuck holes or other pavement defects.
6. Animals crossing a street or road.
7. Cars with a single headlight.
8. Road signs: They are especially important at night because they advise you of conditions you may not be able to see in the dark.

III. Getting out of a skid

A. Release the accelerator.

B. Do not apply brakes.

C. Do not panic. Just follow your natural impulse to keep the car going straight. Steer in the direction you want to go.

D. Just before the front of the car becomes even with the back, straighten the wheel.

E. In a car with manual transmission, avoid depressing the clutch. Try to keep car in third gear.

LESSON XII: Meeting an Emergency

Related Simulation Films

Separating and Compromising Risks
Split Second Decision
Hazard Perception
Handling Emergencies
Crash Avoidance
Hazardous Situations
Driving Emergencies
Critical Situations

Task

To be able to make quick and accurate responses and to take appropriate evasive actions when faced with sudden, unpredictable hazards.

Objective

While receiving instruction and viewing an appropriate simulation film related to emergencies, students will:

1. Identify and avoid potential crash situations.
2. Use appropriate evasive techniques when involved in emergency situations.
3. Maintain an adequate space cushion around the vehicle.

Supplemental Student Activities	Teacher Performances
1. Allow extra space between the car and a potential risk by adjusting speed.	Reemphasize the IPDE concepts.
2. Know what to do in the event of an accident.	Discuss possible conflict situations.
3. Identify unpredictable action of other drivers.	
4. Handle such emergencies as tire failure, hood flying up, car on fire, emergency vehicles, stalled engine, railroad crossing, stuck accelerator.	Present accident situations from which students must select the best escape actions.

Supplemental Student Activities	Teacher Performances
5. Be able to escape to the right or left, brake, or sound the horn if an escape exit does not exist.	Discuss when the driver should use the horn in a hazardous situation.
6. Follow the proper procedure if forced off the road or if brakes fail while being passed.	Use a "still frame" or a rerun technique to emphasize the particular problem situation.

LESSON XIII: Overall Review

Related Simulation Films

The Decision Is Yours
Road Checks
Driving Review
Driver Performance Test
IPDE
Formula for Traffic Survival

Task

To evaluate students' growth and development in the skills, judgment, and attitudes required for safe, efficient driving.

Objective

Given a simulator film that includes a comprehensive sampling of traffic situations, students will correctly demonstrate the ability to:

1. Identify
2. Predict
3. Decide
4. Execute
5. Discuss their errors and possible corrections.

Supplemental Student Activities	Teacher Performances
1. Take a simulator practice driving test. 2. Use escape techniques previously practiced. 3. Develop a plan for individual practice and improvement. 4. Discuss errors and corrective measures.	Use results to discuss strengths and weaknesses of each student.

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RANGE

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Introduction

This curriculum unit deals with the multiple-car range phase of the driver education program. Included are the definition and purposes of the multiple-car range, administrative considerations, facility design, equipment, sources of cost considerations, and suggested lesson plans.

The multiple-car range gives students the opportunity to practice basic maneuvers. It provides for development of fundamental driving skills and decision-making processes. Students have the opportunity to make their own decisions based on guided learning activities and to identify those areas requiring special attention in further developing competency for driving under actual traffic conditions. Multiple-car instruction offers a real opportunity to increase the efficiency of driver education at a reduced cost.

Lessons are designed so that the students may be evaluated daily. Prior to the lesson, students can be given a copy of the procedure to be followed so that they may have ample time to digest the information and clearly understand what will be expected of them. This procedure will prevent loss of driving time resulting from extensive explanation.

Handouts are designed in a checklist format. They can be used by the teacher, another student, or the driver to determine whether or not students are following the steps of the lesson. Resulting scores can be recorded as the students' daily evaluation.

Definition: What Is a Multiple-Car Range?

The multiple-car method is defined as an instructional method in driver education that provides for behind-the-wheel experience for a number of students simultaneously on a multiple-vehicle driving facility.

This approach increases the teacher-vehicle ratio. Usually maximum economy and driver interaction are achieved when six or more vehicles are in use simultaneously. On some facilities, as many as 30 students receive simultaneous instruction from one teacher.

A driving range allows students to learn and adjust to the driving tasks in a controlled environment. Instruction progresses from basic skills to more complex tasks and maneuvers. While the development of manipulative skills is basic to the multiple-car method, the student's ability in a traffic situation to identify, predict, and decide must also be emphasized.

Advantages and Disadvantages of the Multiple-Car Driving Range

Advantages

1. Encourages the teacher to recognize and teach to individual student differences.
2. Helps students develop basic manipulative skills.
3. Helps students develop independence and confidence in their own abilities.
4. Helps students develop a sense of responsibility and self reliance.
5. Helps students develop perceptual skills and habits.
6. Provides flexibility, allowing for a wide variety of situations.
7. Provides opportunity for more efficient instruction.
8. Provides students an opportunity to drive various makes and models of cars.
9. Provides low-risk driving experiences.
10. Controls the learning situation.
11. Can be used as a public relations tool with parents and the community.
12. May be built for special or dual purposes.

Disadvantages

1. Initial cost of construction is high.
2. Site may be some distance from school, thereby taking commuting time from instructional time.
3. High speed driving experience is limited.
4. Snow removal may be a problem.
5. It may become an attractive nuisance unless security of facility is provided.
6. Acquisition of an ample number of free-loan vehicles creates an added responsibility.
7. Traffic experience is limited because range traffic tends to be predictable.

Purpose of the Multiple-Car Range

The multiple-car range will

- Develop basic skills.
- Provide repetition without interference.
- Provide for individual differences.
- Provide more actual driving experience.
- Provide low risk environment to students and teacher.
- Build drivers' self-confidence.
- Develop individual responsibility and decision-making.
- Provide the instructor a greater opportunity to observe behavior.
- Provide students with the opportunity to observe, demonstrate, and practice in an organized progressive sequence, the manipulative driving skills in a controlled learning environment.
- Complement or supplement other instructional phases in the driver education program through the process of developing student skills.
- Emphasize learning rather than teaching and strengthen the bonds between knowledge and performance through feedback from the vehicle and the road environment.

Administrative Considerations

Consider the following when planning the development of a multiple-car facility.

- Local, state, and national policies and regulations
- Present number of eligible students
- Future number of eligible students
- Adult and special programs that can use the facility
- Support from the school, community, and administration
- Financial resources (federal, state aid, community)
- Land acquisition
- Construction (gravel, concrete, or asphalt)
- Single or dual purpose facility
- Vehicles
    1. Purchase, loan, lease
    2. Storage
    3. Gas and maintenance
    4. Movement to and from facility
- Insurance (teachers and vehicles)
- Time—teacher load
- Provision for setting up and dismantling the range daily
- Accident reports
- Security
- Location

Site Selection and Development

Select a site as near the school as possible to prevent problems in transporting students. However, consider the relationship between the location of the facility and possible distraction of classroom activities.

Soil composition and drainage and provisions for ease of snow removal and disposal should also be considered.

Include storage, toilet, and telephone facilities in the construction plan.

Safety is a very important consideration in the selection of a site. The facility should be enclosed by a fence or buffer area. Also, include in the plans, adequate lighting for evening classes and for security purposes at night.

Facility Design

The facility should:

- Afford visual contact for instruction and safety from any one point to all other points.
- Be designed to provide sufficient learning activities for all students throughout the course of instruction.

The following components to be considered when designing the facility are based on the description found in the publication, *Driving Task Instruction, Dual Control, Simulator, and Multiple-Car* by James E. Aaron and Marland K. Strasser.

A. Physical requirements
   1. Road surfaces wide enough for two-way traffic
   2. Four-way and "T" intersections, and curves
   3. Lane markings and standard highway signs
   4. Space for development of fundamental skills
      a. Right angle and offset backing
      b. Turning practice
      c. Turning around
      d. Diagonal, perpendicular, and parallel parking
      e. Lane changing
   5. Configuration for basic traffic experiences
      a. Two-way traffic
      b. One-way traffic
      c. Multilane roads
      d. Use of traffic controls
      e. Intersection approaches
      f. Railroad crossing and crosswalk approaches
      g. Passing or overtaking
   6. Range large enough so that all skill areas and traffic experiences may be utilized at the same time

B. Instructional areas
   1. Right- and left-turn lanes, merging and diverging traffic area
   2. A perimeter road with two 12-foot lanes; some portions of the road should have a three lane section or be designed as a divided highway with a median strip
   3. Crossroad designed to include one major four-way intersection and one "T" intersection
   4. A straight section long enough for overtaking and passing and serpentine exercise

5. An area for the "X" exercise for practice in forward and reverse driving and turning
6. An area or street for practicing the "Y" turn (or turning around on a dead end street)
7. An area for entering and leaving a simulated two-car garage with a single lane driveway intersecting at the street (or similar offset practice area)
8. An area or areas that can be designed as a one-way street
9. Provisions for parallel and angle parking
10. Pedestrian crosswalks and simulated railroad crossings
11. Off-road recovery area

C. Instructional areas recommended but not necessary

1. A standard operational traffic light intersection
2. A raised or "hill" section, perferably at one outside corner
3. An area for the "T" exercise for practice in forward and reverse driving
4. A "figure 8" exercise for practice in steering control

Equipment

The facility will require three types of equipment: vehicles, fixed installations, and portable equipment.

1. Vehicles. The same procedure followed to obtain vehicles for on-street driving can be used for the multicar facility. This is accomplished generally through cooperative programs with the local car dealers. Schools are usually responsible for insurance, regular car maintenance care, registration, and dual controls.

   If equipped with dual controls, the cars may be used for on-street instruction. A small truck or van can be used as a specialized training and service vehicle.

   The use of a variety of automobiles is also a consideration. This enables students to experience a variety of different makes and models. It also stimulates flexibility and adaptability.

2. Fixed installations. Careful consideration is a must when planning for fixed installations. Fixed equipment can limit the flexibility of the facility. You might give consideration to posts or standards for mounting signs, a storage enclosure, and traffic signs. The size, shape, and color of traffic control devices should conform to state highway standards.

3. Portable equipment. The following equipment should be considered when developing the range.

   - Portable traffic signs
   - Traffic cones—useful for outlining exercise areas
   - Lane markings such as "roll down" tape
   - Flags on poles
   - Barricades
   - Car equipment, such as decals, bumper signs, car number signs and dual controls. Each car should also be marked in the driver's compartment with the same number shown on its exterior.
   - Instructor aids—such essentials as foul weather gear, lesson plans, rating sheets, clipboard, and handout materials. Keys can be kept on a keyboard marked by car number. Be sure an extra set of keys is always available.
   - Maintenance equipment—simple tools such as crescent wrench, screwdrivers, pliers, battery jumper, cleaning equipment (such as brooms and cloths).
   - Communication equipment—radio, direct voice, or loud speaker. There is a variety of radio communication units. Those being considered should be evaluated for the specific facility being planned.

Sources of Equipment

Equipment can be purchased, made by the instructor, or in industrial arts classes.

Types of Multiple-Car Facilities

The multiple-car facility is classified by the type of instruction to be used. These are basic skills, traffic mix, and advanced driver education.

- Basic skills facility. This type of facility can be less than 200 X 400 feet. Many schools use a paved area that can be closed to general use. Students can practice basic control and maneuverability along with parallel parking and garage skills.

- Traffic mix facility. Students can practice maneuvers in intersections, merging, exiting, lane changing, and passing. The minimum size of such a facility should be 200 X 400 feet. The facility provides basic skill development along with the traffic mix or interaction.

- Advanced driver education facility. This facility can supply the added experiences of advanced exercises, such as off-road recovery, blowout simulation, and skidding. The facility must be larger than 200 X 400 feet to permit speeds necessary for the advanced driving skills maneuvers.

The multiple-car facility can also be used for special programs with such groups as law enforcement personnel, school bus drivers, truck drivers, and others. If such special programs are desired, be sure to check with the state's traffic safety center personnel, supervisors of driver and traffic safety education, and other qualified persons or agencies. There may be specific regulations that should be considered.

Planners must clearly identify their basic instructional goals, explore the various alternatives available, decide on the size and design of a facility, and design the plan that will best meet the objectives of the total program.

Cost Considerations

There are three major expenditures in the development of the multiple-car facility:

- Land acquisition
- Construction
- Operating cost

The purchase of land represents a substantial initial expenditure. Some schools have prorated land and construction costs over a period of years. Some schools have used an existing paved area which can be adapted to a multiple-car facility.

Investigate the possibility of state and federal assistance for planning and financing multiple-car facilities.

The planning of a dual purpose facility can help to encourage community funding. Be sure to consider the potential local business and industry support, professional and service club interest, and donations from individual citizens, parents, or the public at large. Support can come in the form of financial contributions, and donations of land, labor, and materials.

Tips for Successful Instruction

Position yourself so that you can observe the entire facility at any given point and time. Also, be sure you can move freely and quickly to any area where needed.

The following suggestions may help to reduce accident potential:

1. Review range rules; be sure they are reasonable and clearly understood.
2. Reinforce the fact that the infraction of any rule will lead to instant removal from the range; repeated infraction will lead to removal from the program.
3. Use simple, direct commands based on mutually understood key words.
4. Preface commands with "all cars" or "car numbers____."
5. Teach students special defensive driving tips.
6. Use constructive criticism and positive reinforcement.
7. Make special arrangements for students who seem to perform safely in the typical multiple-car instructional program.

It is difficult to justify the scheduling of more than two students per vehicle on the multiple-car facility. When two students are assigned per vehicle, nondriving students can assume an active role as a student aide.

Lesson Layout

Each lesson in the multiple-car range contains:

- Task
- Objective
- Supplemental Student Activities
- Teacher Performances
- Student Handouts [5]

Lessons are organized to build on the skills acquired in the previous lessons. There should be a quick review of the previous lesson, a lesson briefing, predriving adjustments, and instructor directions or procedures. Students should drive through the exercise and be evaluated at each lesson.

Student handouts can be used for several purposes. Students can review steps for the coming lesson so that they will clearly understand what is expected. Handouts can be used as an evaluation tool either by the instructor, another student, or as a self evaluation tool by the students themselves. (How they are used will depend on the instructor's intent.)

The following is an outline of the lessons contained in this unit. The content of each lesson is briefly listed.

LESSON I: Orientation

A. List rules, enforcement, and noncompliance consequences.

B. Explain range layout.

C. Explain range procedures.

D. Explain and demonstrate range communication.

E. Identify and demonstrate the use of equipment.

F. Make range assignments.

LESSON II: Basic Maneuvers

A. Predriving activities and checks

B. Putting car in motion

1. Start
2. Moving forward
3. Stop

C. Moving backward

[5] Student handouts are adapted from handouts used in the Sandusky, Ohio High School driver education program. (With permission)

D. Turns

1. Review of previous range lesson
2. Left turn
3. Right turns

E. Securing the vehicle

LESSON III: Interacting with Traffic

A. Review of Lessons I and II

B. Two-way traffic

C. Intersections and the "X" exercise

LESSON IV: Blending in Traffic

A. Lane changes

B. Expressways, merging, exiting, maneuvers

LESSON V: Passing

LESSON VI: Turning Around

A. Y or 3-point turn

B. U-turn

LESSON VII: Parking and Maneuverability Test

A. Angle parking

B. Parallel parking

C. Maneuverability (Ohio Driving Test)

LESSON VIII: Review and Evaluation

Teachers should adjust the sequence depending on the size and capabilities of the range, number of students, and availability of vehicles.

LESSON I: Orientation

Task

To become familiar with the driving range.

Objective

Students will:

1. List the rules of the range.
2. Identify the consequences of not following the rules.
3. Describe the layout of the range, communication methods, and other equipment.
4. Recite their car assignment.

Supplemental Student Activities	Teacher Performances
1. List the following rules of the range.	Prepare a list of rules for each student. Discuss the rationale behind the rules.
A. Enter the car only upon signal from the instructor.	
B. Recite the number of the car being driven.	
C. Do not adjust the radio; it is to be used only for communication with the instructor.	
D. Do not start or move the car until directed to do so by the instructor.	Emphasize the consequences if the students do not follow rules.
E. Ask for further clarification if an exercise is not clearly understood.	
F. Make correct visual checks prior to moving the vehicle.	
G. Obey all traffic control devices.	
H. Maintain a speed of 15 mph until changed by the instructor.	

Supplemental Student Activities	Teacher Performances
I. When following another car, remain at least three car lengths behind the car ahead.	Review the importance of a safe following distance.
J. When driving keep your eyes on the road; do not look at the instructor or radio.	
K. Park as instructed.	
L. Pay attention to the instructor and do only as instructed.	Discuss the importance of waiting and listening. Use a listening exercise to illustrate the importance of keeping alert.
M. Do not eat or drink while driving.	
N. Keep both hands on the steering wheel.	
O. Observe the proper starting procedures on the range.	
P. Be alert. If the car in front stops, you stop.	
Q. Confine your driving to exercises that have been planned for that class period.	
R. Use directional signals on all turns.	
S. Watch the dashboard gauges and warning light. Notify the instructor when the gas gauge reads less than 1/4 full of gas.	
T. When confused, go through stopping and securing procedure. Consult with the instructor. Do not leave the car unless told to do so by the instructor.	
U. Student misconduct can result in immediate expulsion from class.	

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Supplemental Student Activities	Teacher Performances
V. If two or more students are in a car, observe the following: 1. Do not change drivers unless told to do so by the instructor. 2. Avoid talking. You may not hear the instructions. 3. If there is a potential collision, apply the brake. Do not wait for instructions. W. Return all keys and communication devices to the proper location and have them checked by the instructor before leaving class.	
2. Describe the range to be used for class.	Use transparencies of the range and explain the various special areas.
3. Describe the communication methods and other equipment that will be used.	Discuss the method of communication that will be used. Explain other equipment that will be used and the reason for it.

LESSON I STUDENT HANDOUT

Range Rules and Regulations

1. Any willful disregard of range rules will result in the loss of your driving turn or dismissal from class or the course.
2. Prepare yourself well; read assigned materials thoroughly; learn the fundamentals; give full attention and effort to the task.
3. Enter cars only upon signal from the range teacher.
4. Know the number of the car you are driving.
5. Do not adjust the car radio; it is to be used only for communication with the instructor.
6. No student will start or move the car until directed by the range teacher.
7. When an exercise is not clearly understood, ask for further clarification.
8. Make proper visual checks prior to moving your vehicle.
9. Obey all traffic control devices.
10. The speed limit on the range is a maximum of 15 mph until changed by the instructor.
11. When following another car, remain at least three car lengths behind.
12. No smoking, drinking or eating.
13. When driving keep your eyes on the road. Do not look at the instructor or the radio.
14. At the close of the period, park as instructed.
15. You are entrusted with the car and operation of a very expensive piece of equipment.
16. Be alert. If the car in front stops, you stop.
17. If the car is not running properly, inform the instructor.
18. Stay out of the roadway while walking to and from the range.
19. If two or more students are in a car, observe the following: (A) Do not change drivers unless told to do so by the instructor. (B) Avoid talking. You may not hear the instructor.
20. All keys and communication devices must be returned to the proper location and checked by the instructor before pupils are dismissed.

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LESSON II: Basic Maneuvers

Task

To practice predriving procedures, putting the car in motion, stopping, braking, turning, and securing the car.

Objective

Students will:

1. Demonstrate correct predriving procedures, starting, and stopping the car.
2. Demonstrate braking, backing, turning, and securing the car.

Supplemental Student Activities	Teacher Performances
1. Demonstrate the correct predriving procedures.	Review the diagram of the range layout.
A. Unlock the door.	Check to be sure that students know their car number.
B. Enter the car safely.	
C. Put the proper key in the ignition.	
D. Adjust the seat.	
E. Adjust the headrest.	
F. Adjust the mirrors.	Discuss the various exercises and maneuvers which will be performed on the range.
G. Adjust ventilation.	
H. Fasten seat belt and shoulder harness.	
I. Turn the key to the "on" position and prepare to receive instructions via the radio.	Review the predriving procedures.
2. Perform smooth starting and stopping of the vehicle at the commands of the instructor according to the following procedures.	Give instruction to start the cars.
A. Shift to "park" gear.	

Supplemental Student Activities	Teacher Performances
B. Turn the key to the start positions and release.	
C. Touch the accelerator lightly.	Have the students begin one car at a time, moving (upon command) slowly down the range, starting and stopping at certain intervals.
D. Check the instrument panel for red lights.	
E. Place the right foot on the brake pedal.	
F. Shift to "drive" gear.	
G. Check the traffic.	
H. Release the park and foot brake.	
I. Let the car ease forward by touching the accelerator pedal lightly.	
J. Press slowly but firmly on the brake to come to a complete stop.	
3. Demonstrate the proper procedure for straight backing.	Walk the students through the procedure for backing.
A. Check around the car before backing.	Explain and demonstrate the steering methods involved in backing.
B. Check to be sure the car is in reverse.	
C. Look where you are backing.	
1. When backing straight look over the right shoulder and out rear window.	
2. When backing left, look over the left shoulder and out the left window.	Present the steps for backing.

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Supplemental Student Activities	Teacher Performances
3. When backing right, look over the right shoulder and out the right rear window. 4. Occasionally check all around. D. Back the car very slowly; use gas only if the car does not move. E. Straighten the wheels before and after backing. F. When instructed, stop in a smooth and safe manner.	Reinforce the importance of listening to the instruction and performing the action required.
4. Demonstrate correct turns, using the hand-over-hand procedure. A. Check the traffic. B. Be in the proper lane. C. Signal. D. Reduce speed to a maximum of 10 mph. E. Check traffic again. F. Turn into the proper lane. G. Use the hand-over-hand procedure. H. Accelerate when about half way through the turn.	Give commands to help students drive around the range. Example: A. Drive to the corner. B. Turn to the left (or right) using the hand-over-hand procedure. C. Straighten the wheels using the hand-over-hand procedure. D. Follow the car ahead; be sure to stay at least three car lengths behind the car in front. Set up and explain the figure eight and weaving exercises. Talk students through the exercises.

Supplemental Student Activities	Teacher Performances
5. Secure the vehicle and safely leave the range area. A. Place the right foot on the brake. B. Bring the vehicle to a complete stop. C. Shift to "park" gear. D. Turn the key to the lock position. E. Set the park brake. F. Remove the key from the ignition. G. Remove the seat belt. H. Check around the car. I. Open the door and leave the car safely. J. Put the key in the proper place on the board.	Review hand-over-hand procedure. Instruct students on how and when to secure cars.

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LESSON II CHECK LIST AND STUDENT HANDOUT

Basic Maneuvers

Yes	No	
		Predriving Activities
_____	_____	1. Unlock the door.
_____	_____	2. Enter the car safely.
_____	_____	3. Put the proper key in the ignition.
_____	_____	4. Adjust the seat.
_____	_____	5. Adjust the headrest.
_____	_____	6. Adjust the mirrors.
_____	_____	7. Adjust the ventilation.
_____	_____	8. Fasten the seatbelt and shoulder harness.
		Putting Cars in Motion: Start
_____	_____	1. Turn the key to the "on" position.
_____	_____	2. Shift to "park."
_____	_____	3. Turn the key to the start position and release.
_____	_____	4. Touch the accelerator lightly.
_____	_____	5. Check the instrument panel.
_____	_____	6. Place your foot on the brake pedal.
_____	_____	7. Shift to "drive" gear.
_____	_____	8. Check the traffic.
_____	_____	9. Release the park and foot brake.
_____	_____	10. Let car ease forward by touching the accelerator pedal lightly.
		Stop
_____	_____	1. Be in the proper lane.
_____	_____	2. Check the traffic.
_____	_____	3. Signal.

Yes	No	
_____	_____	4. Release the accelerator.
_____	_____	5. Brake to a smooth stop.
		Securing the Car
_____	_____	1. Shift to "park" gear.
_____	_____	2. Put the parking brake "on."
_____	_____	3. Turn off the ignition.
_____	_____	4. Remove the key.
_____	_____	TOTAL

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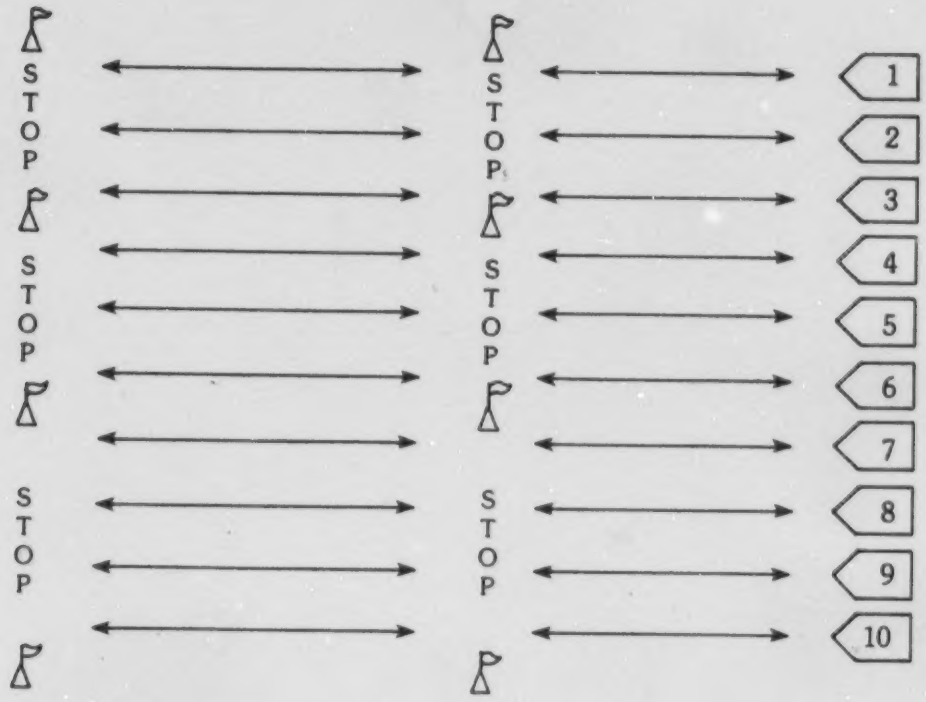
Backing

Yes	No	
_____	_____	1. Check around the car before backing.
_____	_____	2. Check to be sure the car is in reverse.
_____	_____	3. Backing straight, look over the right shoulder and out the rear window.
_____	_____	4. Backing left, look over the left shoulder and out the left window.
_____	_____	5. Backing right, look over the right shoulder and out the right rear window. Right hand on back of seat, left hand on top of steering wheel.
_____	_____	6. Occasionally check all around.
_____	_____	7. Back the car slowly.
_____	_____	8. Straighten the wheels before and after backing.
_____	_____	TOTAL

LESSON II CHECK LIST AND STUDENT HANDOUT

Vehicle Familiarization: Moving the Car Forward and Stopping Moving the Car in Reverse



Yes	No	
_____	_____	1. Start the cars.
_____	_____	2. Begin one car at a time. Upon command, move slowly to the first cone and stop smoothly.
_____	_____	3. Again on command, move the cars one at a time slowly forward to the second cone and stop.
_____	_____	4. Note: Move only on command.
_____	_____	5. Shift to reverse.
_____	_____	6. Back straight to first cone (one at a time, upon command from the instructor).
_____	_____	7. Again on command, move cars one at a time slowly backward to the start position. Stop.
_____	_____	8. Wait for further instruction.
_____	_____	TOTAL

LESSON III: Interacting with Traffic

Task

To develop the skills necessary to interact safely in the traffic mix.

Objective

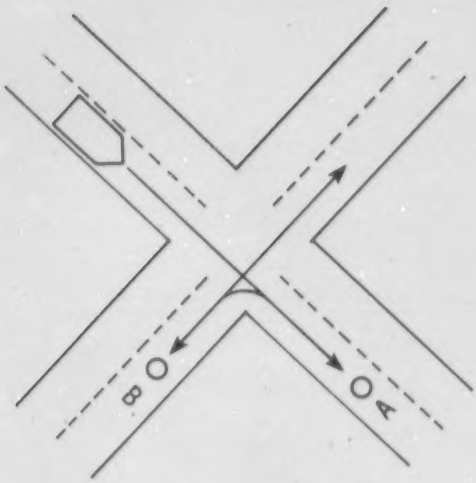
Students will:

1. Make turns in traffic.
2. Obey all traffic signs and yield laws.
3. Act appropriately in the traffic mix.

Supplemental Student Activities	Teacher Performances
1. Make turns correctly in two-way traffic.	Review the correct procedure for right and left turns.
2. Obey all traffic markings, signs and regulations. Approach stop, yield, and railroad signs, following the proper procedure at each.	Review proper stopping at a stop sign, stop line, crosswalk, or before intersections. Also review yield and railroad sign procedures.
3. Demonstrate correct basic skills by driving in the right hand lane and keeping a safe following distance.	Instruct student to perform basic driving skills.
4. Properly perform exercises as instructed.	Explain and demonstrate the "X" exercise.

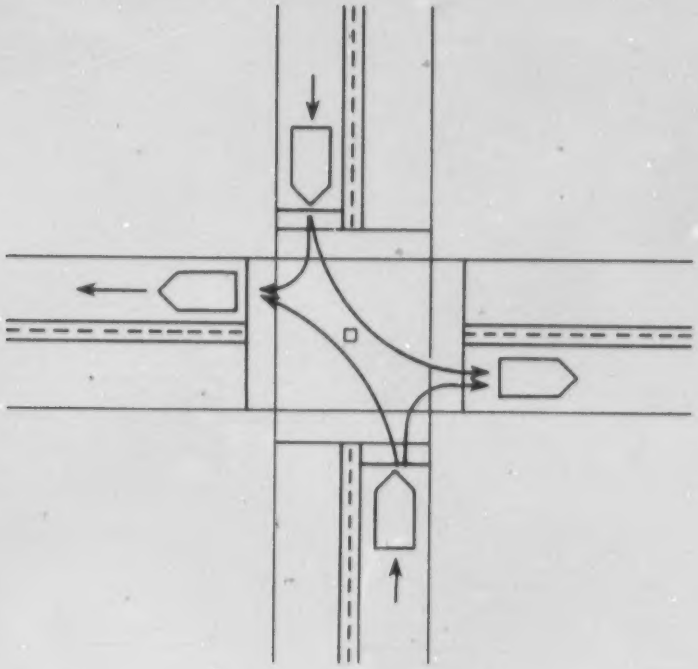
LESSON III CHECK LIST AND STUDENT HANDOUT

The "X" Exercise



Yes	No	
_____	_____	1. Check traffic and signal intent to stop.
_____	_____	2. Stop smoothly and within six inches from cone A.
_____	_____	3. Back smoothly into the correct lane and stop with the back bumper within 12 inches of cone B.
_____	_____	4. Stay off the yellow line .
_____	_____	5. Drive through the intersection.
_____	_____	TOTAL

Turns



Yes	No	
_____	_____	1. Check the traffic.
_____	_____	2. Be in the proper lane.
_____	_____	3. Signal.
_____	_____	4. Reduce speed (maximum 10 mph).
_____	_____	5. Check the traffic.
_____	_____	6. Turn into the proper lane.
_____	_____	7. Use hand-over-hand technique.
_____	_____	8. Maintain a following distance of at least four car lengths from the car ahead of you.
_____	_____	9. When the car in front of you stops, you stop.
_____	_____	10. When you are halfway through the turn, accelerate.
_____	_____	TOTAL

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LESSON IV: Blending in Traffic

Task

To learn when and how to change lanes and enter and leave controlled access highways.

Objective

Students will:

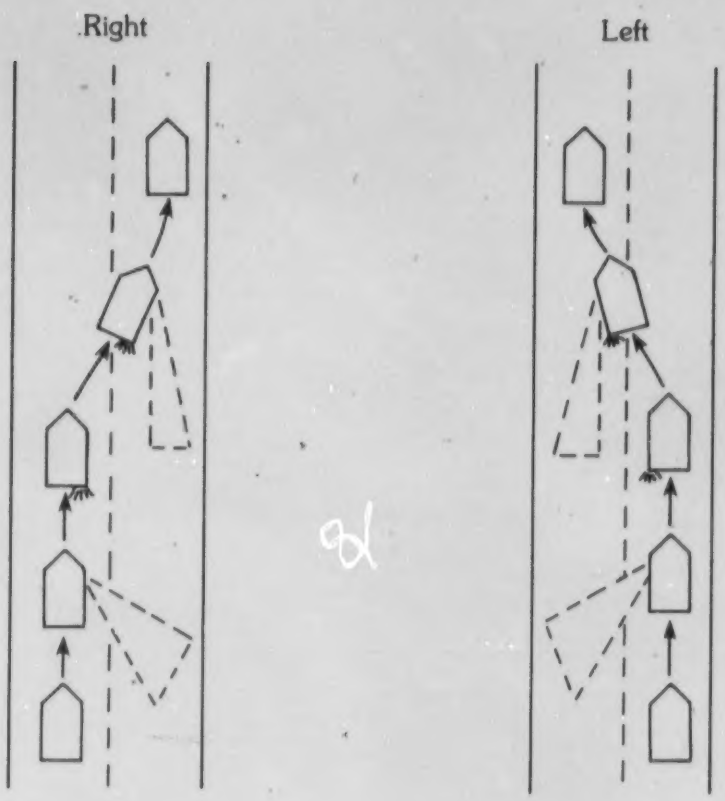
1. Demonstrate vehicle control.
2. Perform proper and safe lane changes.
3. Merge into traffic safely.

Supplemental Student Activities	Teacher Performances
1. Follow instructions and make appropriate lane changes according to these steps.	Prepare a list of procedures for students to have prior to and during the exercises.
A. Give the appropriate signal.	
B. Check rear and side view mirrors.	
C. Check traffic in front and behind in the lane in which you intend to turn.	Walk the students through a lane change maneuver.
D. Check blind spots.	
E. Turn the steering wheel slightly in the direction in which you intend to turn; then, move smoothly into the appropriate lane.	
F. Turn off signal.	Emphasize the importance of keeping speed up so that you do not lose the space for your lane change.
G. Be alert for hazardous driving situations.	
2. Perform the deceleration maneuver following these steps:	Demonstrate the maneuver for the students.
A. Give the signal before entering.	Talk the students through the steps on their first attempt.
B. Check mirrors.	

Supplemental Student Activities	Teacher Performances
C. Check blind spots.	Have another instructor lead students through the first attempt.
D. Make the turn into the deceleration lane, then reduce speed.	
E. Continue driving and blend with traffic.	Emphasize that speed reduction occurs only after moving to the deceleration lane.
F. Adjust speed to blend with traffic.	
3. Use the acceleration lane to enter the traffic flow following these steps:	
A. Signal.	
B. Check traffic.	
C. Check mirrors.	
D. Check blind spots.	
E. Judge the speed of oncoming traffic and adjust your speed so that you can enter without creating a hazardous condition.	Emphasize the importance of adjusting speed to the flow of traffic.
F. Continue well into the acceleration lane.	Have this maneuver demonstrated for the students.
G. Move smoothly into the correct lane.	
H. Turn signal off.	
I. Adjust speed and look for new hazards.	
4. Blend smoothly with traffic.	

LESSON IV CHECK LIST AND STUDENT HANDOUT

Lane Change (Right-Left)



Yes	No	
_____	_____	1. Check traffic.
_____	_____	2. Give the appropriate signal.
_____	_____	3. Check traffic.
_____	_____	4. Check blind spots.
_____	_____	5. Turn the steering wheel slightly in the direction of turn.
_____	_____	6. Steer into the lane.
_____	_____	7. Turn off the signal.
_____	_____	TOTAL

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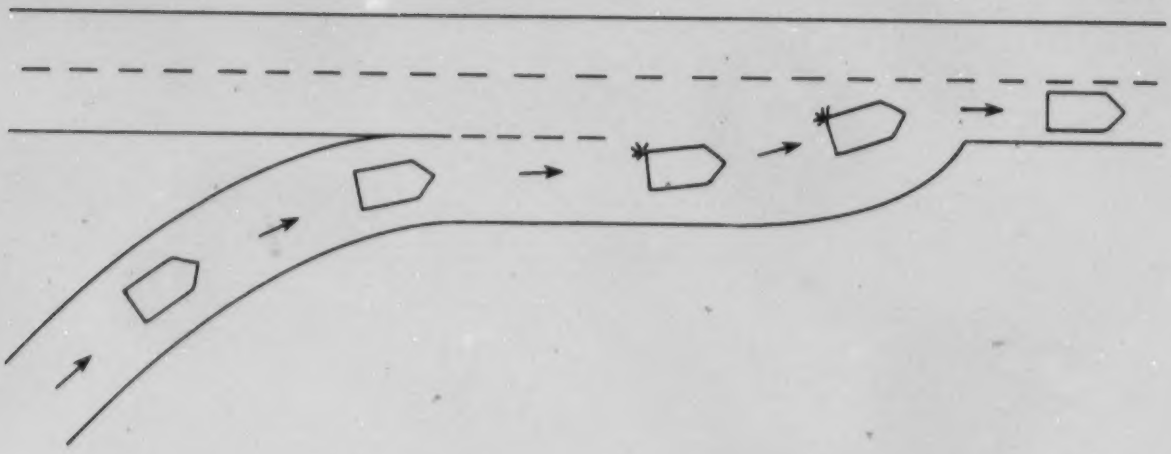
LESSON IV CHECK LIST AND STUDENT HANDOUT

Entering Freeway

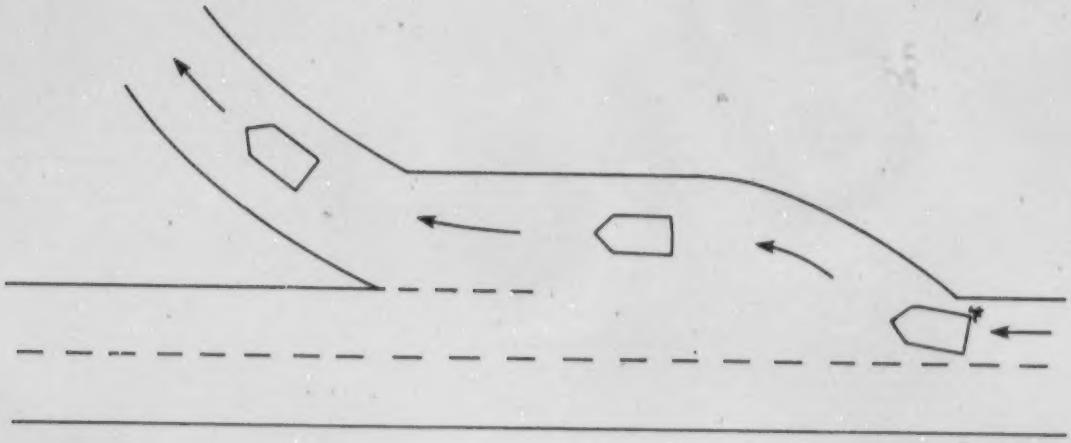


Acceleration

Yes	No	
_____	_____	1. Check traffic.
_____	_____	2. Signal.
_____	_____	3. Check traffic.
_____	_____	4. Check blind spot.
_____	_____	5. Judge the speed of oncoming traffic and adjust your speed so you can enter without becoming a hazard.
_____	_____	6. Continue well into the acceleration lane and then blend with traffic.
_____	_____	7. Move smoothly into the correct lane.
_____	_____	8. Turn signal off.
_____	_____	9. Adjust speed and look for new hazards.
_____	_____	10. Blend smoothly with traffic.
_____	_____	TOTAL

LESSON IV CHECK LIST AND STUDENT HANDOUT

Exiting Freeway



Deceleration

Yes	No	
_____	_____	1. Check traffic.
_____	_____	2. Give signal.
_____	_____	3. Check mirrors.
_____	_____	4. Check blind spot.
_____	_____	5. Make turn into deceleration lane then slow.
_____	_____	6. Continue driving and blend with traffic.
_____	_____	TOTAL 158

LESSON V: Passing

Task

To develop the skills necessary to pass safely in appropriate situations.

Objective

Students will:

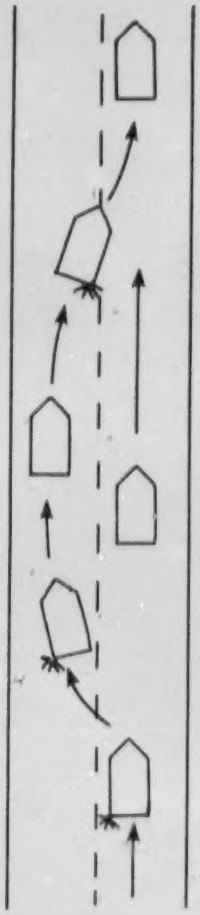
1. Demonstrate proper procedure for safe passing on a one-way street.
2. Demonstrate proper procedure for safe passing on a two-way road with passing zones and oncoming traffic.

Supplemental Student Activities	Teacher Performances
1. Demonstrate the proper procedure for initiating safe passing according to the following steps.	
A. Establish safe following distance until passing is safe.	Prepare a list of the proper procedures for passing and give it to students prior to the lesson.
B. Check for passing zones and passing signs.	Demonstrate the proper passing procedure.
C. Check the distance ahead to spot oncoming traffic in the left lane.	Have students perform passing steps first on a one-way street and then on a two-way road.
D. Turn on the directional signal.	Suggestion: Ask two other instructors to drive slowly around the range in opposite directions. Three student cars can follow in one direction. Three other students can follow in the opposite direction. Students will be instructed to pass these cars using proper procedure.
E. Check blind spot.	
F. Accelerate smoothly into the left lane.	
G. Build speed higher than the car you are passing.	

Supplemental Student Activities	Teacher Performances
H. Check traffic ahead. I. Tap the horn. 2. Demonstrate the proper procedure for completing the safe passing maneuver according to the following steps: A. Turn on the right signal. B. Stay in the passing lane until the vehicle being passed is seen in your inside mirror. C. Check the right blind spot. D. Return to the right lane. E. Turn off the signal; resume safe speed.	Visually evaluate students by checking for the skills used to complete the maneuver successfully.

LESSON V CHECK LIST AND STUDENT HANDOUT

Passing



Yes	No	
_____	_____	1. Maintain safe following distance until passing is safe.
_____	_____	2. Check for passing zones and passing signs.
_____	_____	3. Check the distance ahead for oncoming traffic in the left lane.
_____	_____	4. Turn on the directional signal.
_____	_____	5. Check blind spots.
_____	_____	6. Accelerate into the left lane.
_____	_____	7. Build speed higher than the car you are passing.
_____	_____	8. Check traffic ahead.
_____	_____	9. Tap the horn.

Yes	No	
_____	_____	10. Turn on right signal.
_____	_____	11. Stay in passing lane until vehicle being passed is seen in your inside mirror.
_____	_____	12. Check the right blind spot.
_____	_____	13. Return to the right lane.
_____	_____	14. Turn off the signal; resume safe speed.
_____	_____	TOTAL

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LESSON VI: Turning Around

Task

To develop the skill necessary to make Y- and U-turns.

Objective

Students will:

1. Demonstrate proper procedure for Y- and U-turns.
2. Make adequate traffic checks when turning around.

Supplemental Student Activities	Teacher Performances
1. Demonstrate the following procedures for making a Y-turn:	Prepare and hand out to students a list of proper steps for making Y- and U-turns.
A. Check traffic to determine if safe to stop.	
B. Signal for stop.	
C. Position car near right edge of roadway and stop.	
D. Check traffic conditions.	Demonstrate making a Y-turn.
E. Signal for a left turn.	
F. Check blind spots.	
G. When safe, move slowly forward; make a full left turn.	
H. When approximateiy 18 inches from the curb, make a full right turn and stop before touching the curb.	
I. Shift to reverse and back to a point approximately 18 inches from the rear curb.	

Supplemental Student Activities	Teacher Performances
J. Turn the steering wheel sharply left and stop before touching the curb.	
K. Shift to drive.	
L. Check the traffic and enter the proper lane.	
2. Demonstrate the following procedure for making U-turns.	
A. Change to the left lane or lane nearest the center of the roadway.	Demonstrate making a U-turn.
B. Give the left turn signal.	
C. Proceed only when traffic control devices permit.	
D. Check the intersection to see if it is clear.	
E. Move slowly forward turning fully to the left.	
F. Unwind the steering wheel; move into the proper lane and adjust speed to traffic conditions.	Evaluate students by visually checking for their ability to successfully complete the turn.

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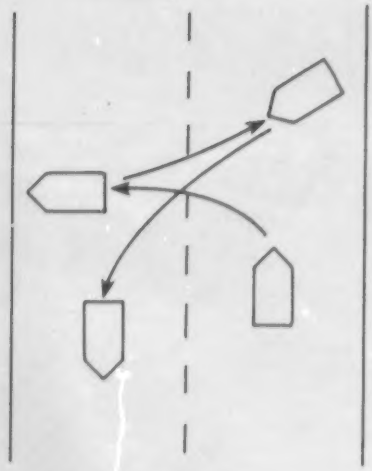
LESSON VI CHECK LIST AND STUDENT HANDOUT

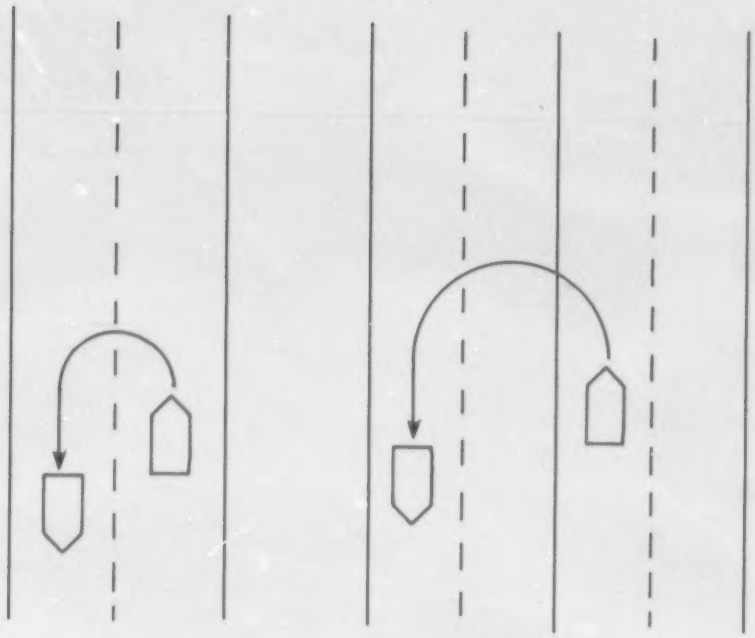
Y-Turns



Yes	No	
_____	_____	1. Check traffic to determine if it is safe to stop.
_____	_____	2. Signal for a stop.
_____	_____	3. Position the car near the right edge of roadway and stop.
_____	_____	4. Check traffic conditions.
_____	_____	5. Signal for a left turn.
_____	_____	6. Check blind spots.
_____	_____	7. When safe, move slowly forward, turning full left.
_____	_____	8. When approximately 18 inches from the curb, turn full right and stop before touching curb.
_____	_____	9. Shift to reverse and back to a point approximately 18 inches from the rear curb.
_____	_____	10. Turn the steering wheel sharply left and stop before touching the curb.
_____	_____	11. Shift to drive.
_____	_____	12. Check traffic and enter proper lane.
_____	_____	TOTAL

LESSON VI CHECK LIST AND STUDENT HANDOUT

U-Turns



Yes	No	
_____	_____	1. Check to be sure U-turns are not prohibited.
_____	_____	2. Execute proper lane change to left lane or lane nearest the center of the roadway.
_____	_____	3. Give the left turn signal.
_____	_____	4. Proceed only when traffic control devices permit.
_____	_____	5. Check the intersection to see if it is clear.
_____	_____	6. Move slowly forward turning full left.
_____	_____	7. Unwind the steering wheel; move into the proper lane and adjust speed to traffic conditions.
_____	_____	TOTAL

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LESSON VII: Parking and Maneuverability Test

Task

To practice angle parking, parallel parking, hill parking, and the maneuverability test.

Objective

Students will:

1. Demonstrate proper steps for angle and parallel parking and leaving parking space.
2. Demonstrate proper steps for hill parking.
3. Demonstrate the Ohio maneuverability test.

Supplemental Student Activities	Teacher Performances
1. Demonstrate the following steps for angle parking:	Prepare handouts for angle and parallel parking.
A. Be in the proper lane.	
B. Check traffic.	
C. Reduce speed.	
D. Stay as far away from parked cars as possible without going into the other lane of traffic.	
E. When the front bumper is even with the first line, turn toward the curb.	Demonstrate the steps for angle parking.
F. Creep forward, centering the car into the space.	Identify the critical points that students should check.
G. Stop when the front wheels touch the curb.	
2. Leaving the parking space:	
A. Move the selector to "reverse."	
B. Signal.	

Supplemental Student Activities	Teacher Performances
C. Creep straight back until you can see traffic.	Remind the students to check for traffic.
D. Stop and check traffic.	
E. When clear, continue backing; turn wheels sharply toward the curb.	
F. Back into the proper lane.	
G. Move forward.	
3. Demonstrate the following steps for parallel parking:	Have a student demonstrate these steps. Point out the specific spots where the student needs to be extra careful.
A. Approach the parking space in correct lane.	
B. Maintain a slow speed.	
C. Give the appropriate stop signal.	
D. Brake.	
E. Stop two feet away and parallel to the other car with your back bumpers even.	
F. Shift to "reverse" and check traffic.	
G. Back slowly, turning wheels to full right.	Make sure students understand what is meant by a 45° angle. Ask them to explain.
H. When the car is at a 45° angle to the curb, quickly straighten the wheels and continue backing.	
I. When the front bumper of your car is even with the rear bumper of the other car, turn sharply to the left.	
J. Stop before touching the rear car.	
K. Shift to "drive".	168

Supplemental Student Activities	Teacher Performances
L. Move forward slowly, straighten wheels, and center the car.	
M. If leaving the car, follow the proper procedure for securing the car.	
4. Leaving the parking space:	
A. Shift to "reverse" and release the parking brake; back slowly.	
B. At a point approximately one foot from the parked car behind, stop; turn the steering wheel sharply left.	
C. Shift to "drive."	
D. Signal.	
E. Check traffic over the left shoulder.	Stress the importance of traffic checks and signaling.
F. When safe, slowly move forward into the nearest lane while checking the clearance of the right front fender.	
G. Give a headcheck over the right shoulder to check clearance of the parked car.	
H. Center vehicle in the lane.	
5. Demonstrate the maneuverability test.	
A. Start at point A.	Discuss the diagram on the handout.
B. Drive forward through the box formed by the cones.	
C. Do not touch any cones or stop at midblock.	Stress that touching a cone means losing points on the test.
D. Drive to the right or left of cone B as instructed.	

Supplemental Student Activities	Teacher Performances
E. After you steer past the cone, quickly straighten the wheels so the car is again pointing straight ahead—that is, so that the sides of the car are parallel with the sides of the box, as they were when you drove through it.	
F. When the rear bumper of your car is even with cone B, you must come to a full stop. Your car must be pointing straight ahead, parallel with the sides of the box.	Stress that stopping at an angle means loss of ten points. Also, stress that stopping with more than 12 inches in front of or behind the cones results in loss of five points.
G. You will be told to back up into the box formed by the cones. Follow the same steps taken in the first part, but this time in reverse.	
H. As you back past cone B, quickly straighten your car so you can continue backing without touching any of the cones or stopping in mid-course to check or adjust your position.	Point out that stopping in mid-course means loss of five points.
I. When the front bumper of your car is even with the cones you started at, you must come to a full stop.	

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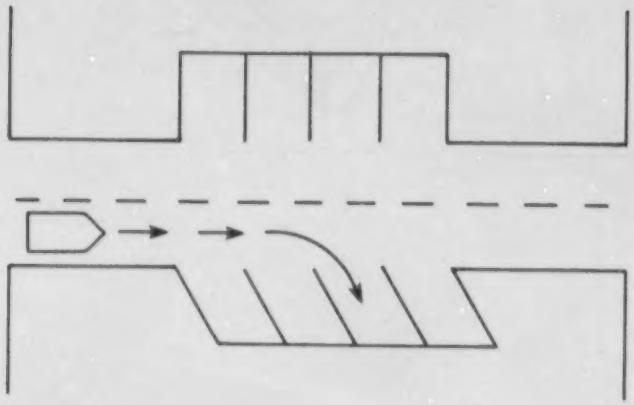
LESSON VII CHECK LIST AND STUDENT HANDOUT

Angle Parking

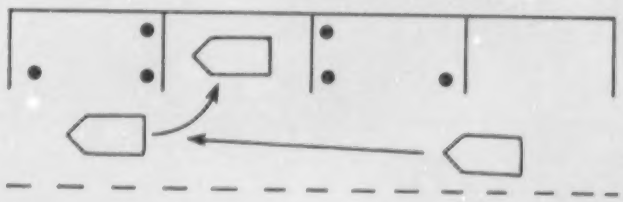


Yes	No	
		Entering
_____	_____	1. Be in proper lane.
_____	_____	2. Check traffic.
_____	_____	3. Reduce speed.
_____	_____	4. Stay as far away from parked cars as possible without going into other lane of traffic.
_____	_____	5. When the front bumper is even with the first line (extended), turn toward curb.
_____	_____	6. Creep forward, centering the car in the space.
_____	_____	7. Stop when the front wheels touch the curb.
		Leaving
_____	_____	1. Move gear selector to "reverse."
_____	_____	2. Signal.
_____	_____	3. Creep straight back until you can see traffic.
_____	_____	4. Stop and check traffic.
_____	_____	5. When clear, continue backing, turn wheels sharply toward the curb.
_____	_____	6. Back into the proper lane.
_____	_____	7. Move forward.
_____	_____	TOTAL

LESSON VII CHECK LIST AND STUDENT HANDOUT

Parallel Parking

Yes	No	
		Parallel Parking (Right Side of Street)
_____	_____	1. Approach parking space in correct lane.
_____	_____	2. Slow speed.
_____	_____	3. Give appropriate stop signal.
_____	_____	4. Brake appropriately.
_____	_____	5. Stop two feet away and parallel to the other car with your back bumpers even.
_____	_____	6. Shift to "reverse," check traffic.
_____	_____	7. Back slowly, turning wheels to full right.
_____	_____	8. When car is at a 35°-45° angle to curb, quickly straighten wheel to center steer and continue backing.
_____	_____	9. When the front bumper of your car is even with the rear bumper of the other car, turn sharply to the left.
_____	_____	10. Stop before touching rear car.
_____	_____	11. Shift to "drive."
_____	_____	12. Move forward slowly, straighten wheels, and center car.
_____	_____	13. If leaving automobile, follow proper procedures for securing the car.
_____	_____	TOTAL
		Leaving Parking Space
_____	_____	1. Shift to "reverse," release parking brake, and back slowly.
_____	_____	2. At a point approximately one foot from the parked car behind, turn the steering wheel sharp left.



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_____ _____ 3. Shift to "drive."

_____ _____ 4. Signal.

_____ _____ 5. Check traffic over left shoulder.

_____ _____ 6. When safe, move forward slowly into nearest lane, while checking clearance of right front fender.

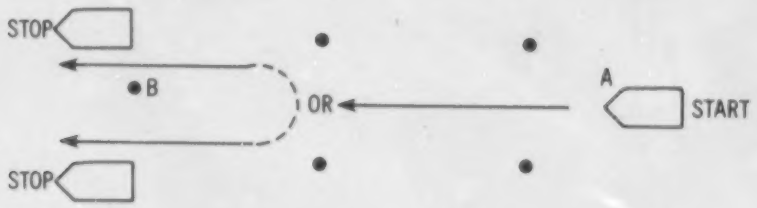
_____ _____ 7. Make headcheck over right shoulder to check clearance of parked car.

_____ _____ TOTAL

LESSON VIII CHECK LIST AND STUDENT HANDOUT

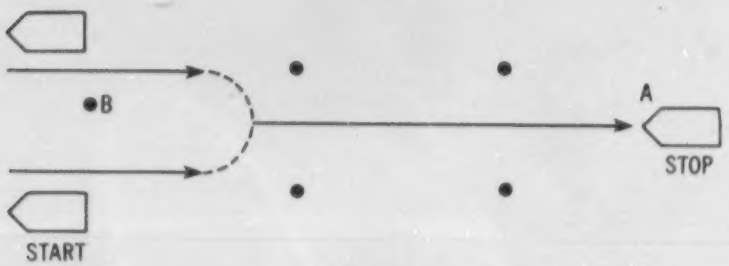
Maneuverability Test[6]

Purpose: The maneuverability test is designed to measure a driver's ability to handle his or her vehicle in tight spaces. To pass the test you must demonstrate practical skills needed in everyday driving situations—such as starting, stopping, steering around obstacles, changing lanes, and backing. You must also show that you can judge distances accurately.



Yes	No	
_____	_____	1. Start at point A.
_____	_____	2. Drive forward through the box formed by the cones.
_____	_____	3. Do not touch any cones or stop in midblock.
_____	_____	4. Drive to the right or left of cone B.
_____	_____	5. After you steer past the cone quickly straighten wheels so your car is again pointing straight ahead—that is, so that the sides of your car are parallel with the sides of the box, as they were when you drove through it.
_____	_____	6. When the rear bumper of your car is even with cone B, you must come to a full stop. Your car must be pointing straight ahead, parallel with the sides of the box.
_____	_____	TOTAL

[6]Diagrams and steps adapted from Henry J. Borchers, Grace A. Greene Vocational Center, Dayton, Ohio. (With permission)



Yes	No	
_____	_____	7. You will be told to back up into the box formed by the cones. Follow the same course you covered in the first part—but this time in reverse.
_____	_____	8. As you back up past cone B, quickly straighten your car so you can continue backing without touching any of the cones or stopping in mid-course to check or adjust your position.
_____	_____	9. When the front bumper of your car is even with the cones you started at, you must come to a full stop. That completes the test.
_____	_____	TOTAL

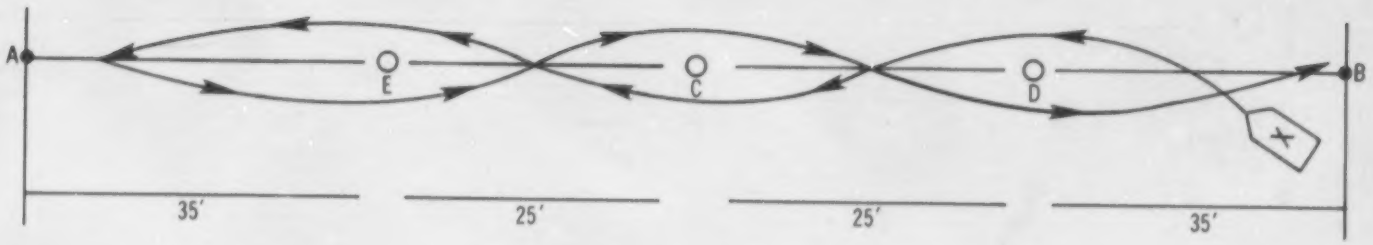
Hint on Maneuverability Test Scoring:

You must score 75 percent or higher on the maneuverability test to pass. Points will be deducted from a perfect score of 100 as follows:

- Touching a cone (five points off each time).
- Stopping in mid-course to check or adjust your car's position (five points off each time).
- Making the stop with the rear bumper of your car more than 12 inches in front of or behind cone B (five points off).
- Making the stop with your car at an angle to the course—that is with the sides of your car not parallel with the sides of the box (ten points off).
- Making the final stop with the front bumper of your car more than 12 inches in front of or behind the cones you started at (five points off).
- Knocking over a cone, running over the curb, or other dangerous actions (26 points off—automatic failing grade).

LESSON VII CHECK LIST AND STUDENT HANDOUT

Weaving



Yes	No		
_____	_____	1.	Start at X, drive to the right of D.
_____	_____	2.	Drive left of C.
_____	_____	3.	Drive right of E.
_____	_____	4.	Align the car so that the car is directly at right angles with A and the front bumper is six inches less from object A.
		5.	Back the car, passing to the left of E.
_____	_____	6.	Drive right of C.
_____	_____	7.	Drive left of D.
_____	_____	8.	Align the car so that the back bumper is 12 inches or less from object B.
_____	_____	9.	Maintain a speed limit of 5 mph.
_____	_____	10.	Use the hand-over-hand steering technique.
_____	_____		TOTAL

LESSON VIII: Review and Evaluation

Task

To demonstrate safe and efficient control of a motor vehicle.

Objective

Students will perform all procedures learned on the range safely and efficiently as they drive the vehicle through a variety of situations.

Supplemental Student Activities	Teacher Performances
1. Perform the variety of driving tasks on the range as instructed. 2. Demonstrate proper predriving procedures, securing the car, turns, traffic conflicts, blocking, merging, and passing procedures.	Choose a variety of exercises for the students to perform. Note: The choice of exercises may come from the supplementary activities. Evaluate students by visual observation.

Lesson VIII Evaluation Check

Multiple-Car Range Students	Car Number	I Orientation	II. Basic Maneuvers A. Predriving Activities	II. Basic Maneuvers B. Putting the Car in Motion	II. Basic Maneuvers C. Moving Backward	II. Basic Maneuvers D. Turns	II. Basic Maneuvers E. Securing the Vehicle	III Interacting with Traffic	IV Blending in Traffic	V Passing	VI Turning Around	VII Parking and Maneuverability Test	VIII Review and Evaluation	Comments
1.														
2.														
3.														
4.														
5.														
6.														
7.														
8.														
9.														
10.														
11.														
12.														
13.														
14.														
15.														
16.														

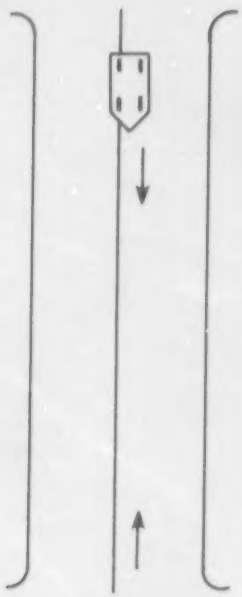
Suggestion: S = activity performance acceptable
U = activity performance not acceptable

Supplementary Activities

Supplement A: Stopping and Backing

Yes	No	
___	___	1. Start with Car in Position X and drive to A. Stop with car perpendicular to A and front bumper not more than 6 inches from object A.
___	___	2. Back car on a straight line from A to B. Stop the car perpendicular to B so that the back bumper is 12 inches or less from object B.
___	___	TOTAL

Supplement B: Driving on Line



Yes	No	
_____	_____	1. Position left front tire on line and travel length of the street.
_____	_____	2. Go slowly but keep car in motion.
_____	_____	3. Keep left rear tire on line and back up to the end of the street.
_____	_____	4. Repeat above steps with right tires on the line.
_____	_____	TOTAL

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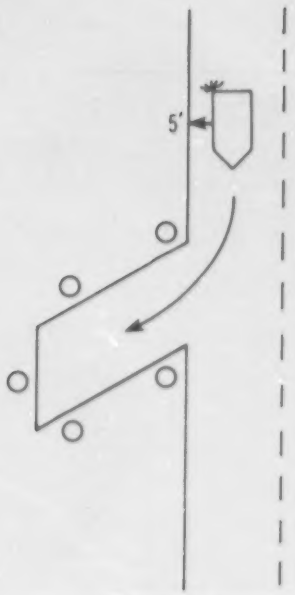
Supplement C: Angle Parking



_____ _____ 1. Observe traffic conditions ahead.

_____ _____ 2. Signal properly.

_____ _____ 3. Be sure car is about five feet away from adjacent parked cars.

_____ _____ 4. Turn sharply to the right, enter slowly and center the car in the stall with the front bumper about even with the end of the stall.

_____ _____ 5. When backing out of space, observe in all directions, move slowly, steer properly so as to follow the path similar to that made when entering the parking stall.

_____ _____ TOTAL

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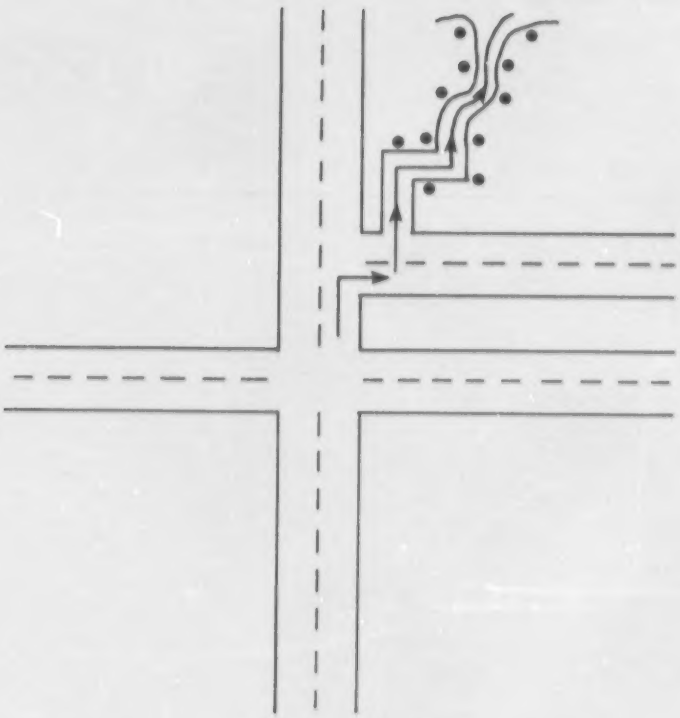
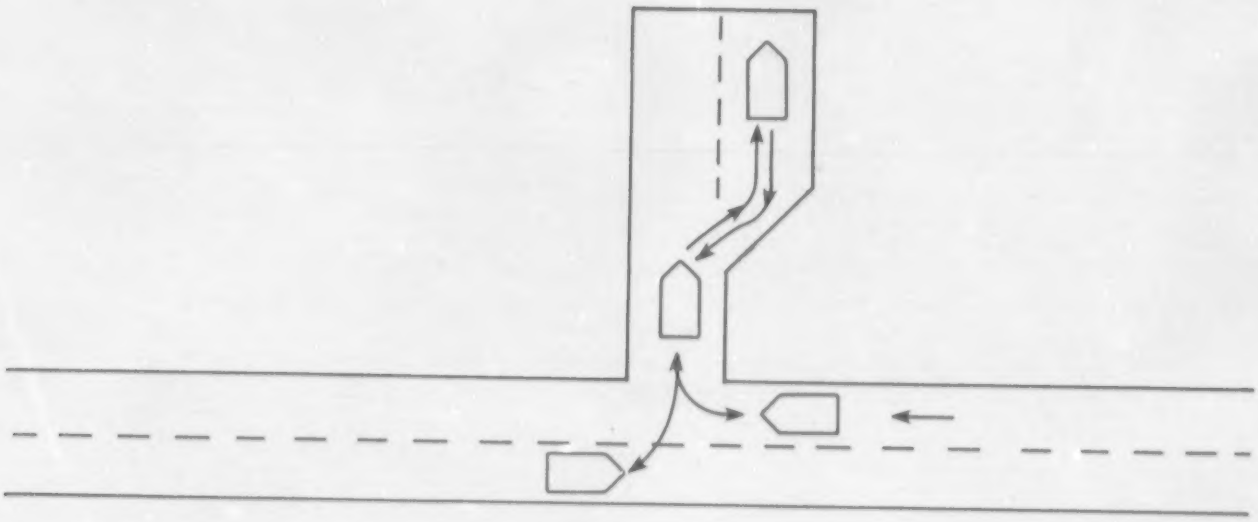
Supplement D: Offset



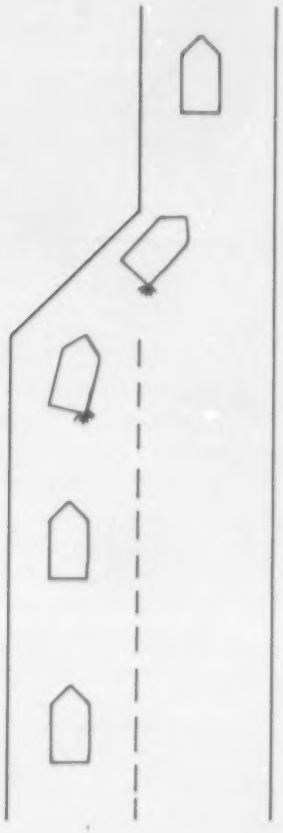
Yes	No	
_____	_____	1. Drive no faster than 5 mph but keep the car in motion.
_____	_____	2. Drive forward through the guidelines and markers without touching the lines.
_____	_____	3. Keep the rear wheel near the marker the car is going around. Do not over steer the car.
_____	_____	4. When traveling forward, the pivot point of the car is the middle of the rear door. When backing, the pivot point is the middle of the rear wheel.
_____	_____	5. When skill has been developed, the driver may back through this maneuver.
_____	_____	TOTAL

Supplement E: Garage Exercise



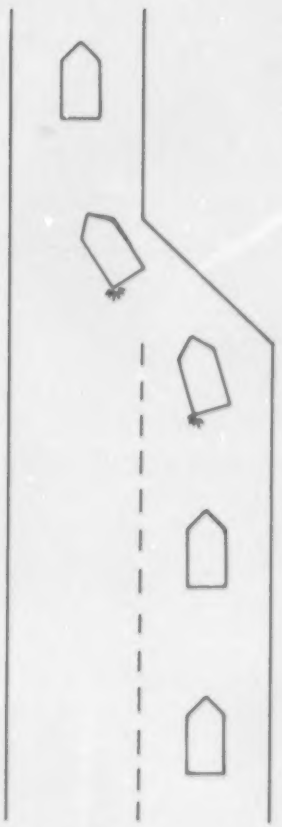
____	____	1. Signal.
____	____	2. Check traffic.
____	____	3. Turn into driveway.
____	____	4. Creep forward, turning into right side of garage, centering car on flag.
____	____	5. Stop when car is 12 inches from flag.
____	____	6. Shift to reverse.
____	____	7. Creep back, turning back into driveway.
____	____	8. Continue backing, then stop before entering street.
____	____	9. Check traffic.
____	____	10. Back into nearest lane.
____	____	11. Move forward.
____	____	TOTAL

Supplement F: Lane Reduction



LEFT LANE

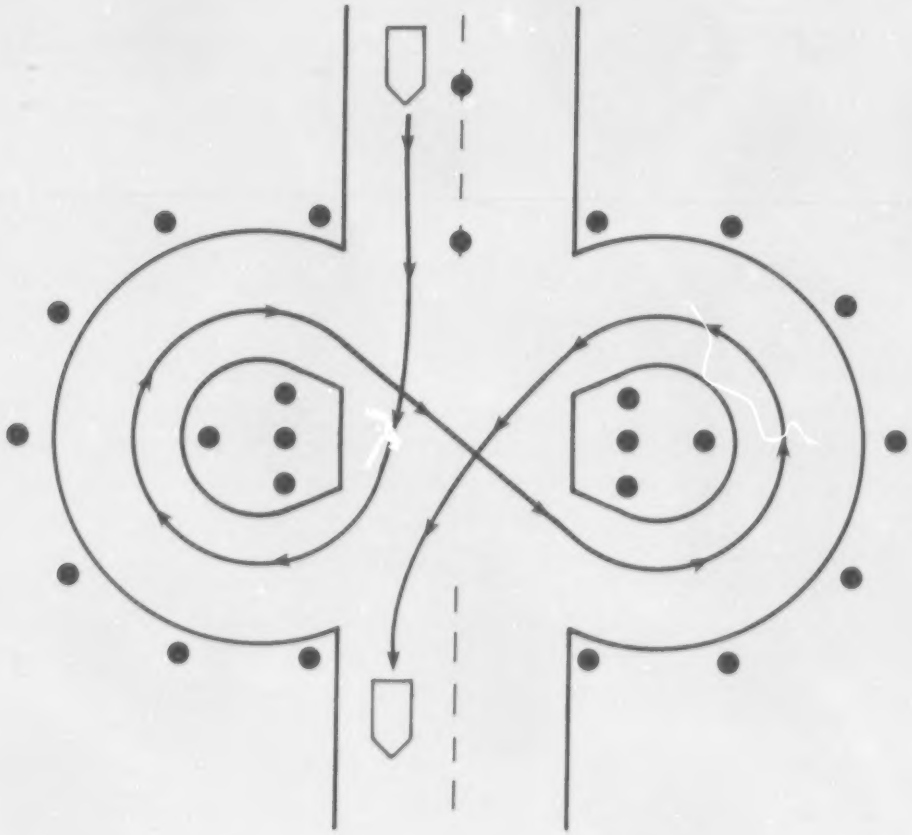
Yes	No		
___	___	1.	Check mirrors.
___	___	2.	Signal right.
___	___	3.	Head check right (blind spot).
___	___	4.	Move right (drifting).
___	___	5.	Blend with traffic.
___	___	6.	Maintain speed throughout maneuver.
___	___		TOTAL



RIGHT LANE

Yes	No		
___	___	1.	Check mirrors.
___	___	2.	Signal left.
___	___	3.	Head check left (blind spot).
___	___	4.	Move left (drifting).
___	___	5.	Blend with traffic.
___	___	6.	Maintain speed throughout maneuver.
___	___		TOTAL

Supplement G: Figure Eight



Yes	No	
_____	_____	1. Keep the speed limit at 10 mph.
_____	_____	2. Signal.
_____	_____	3. Use hand-over-hand steering.
_____	_____	4. Keep the car between lines at all times making smooth movements.
_____	_____	5. Do the figure 8 twice going forward.
_____	_____	6. When adequate skill has been developed the driver may do the above steps backing through the area.
_____	_____	TOTAL

Emergency Procedures

About Passing

When you are passing a car and you suddenly decide you can't make it safely:

1. Reduce speed by decelerating and braking.
2. After vehicle you were trying to pass is clear of your front bumper, pull back into original lane.

Brake Failure

When your brakes fail:

1. Pump brake rapidly.
2. If time, shift to lower gear.
3. Apply parking brake gently enough not to cause skid. Keep hand on brake release to release in case of skid.
4. If necessary, pick spot to stop that will lessen force of impact of a collision.

Accelerator Stuck

When your accelerator sticks:

1. If time, try to pull pedal up with toe of shoe.
2. If not enough time or step 1 fails, turn off ignition.
3. Pull off traveled portion of roadway and secure vehicle.
4. An alternate to step 3 is putting gear selector to "N" or neutral, keeping in mind that an overreving engine can tear itself to pieces in a short time.

Power Failure

When your engine dies and you have loss of power:

1. Keep in mind that you still have the ability to steer and brake; however, it is much harder to apply the brakes and turn the wheel.
2. If time, turn on emergency flashers.
3. Pull off traveled portion of roadway and secure vehicle.

Skid Control

When car goes into skid:

1. Release accelerator.
2. Steer in direction of skid.
3. As vehicle responds, counter-steer in opposite direction until wheels are straight and car continues in original path.
4. Be prepared to correct for second skid.

Off-Road Recovery

When wheels drop off roadway and no conflicts are ahead:

1. Maintain directional control.
2. Reduce speed.
3. When safe, pull completely off traveled portion of roadway.
4. When traffic clears, pull back onto roadway.

When two-wheels drop off roadway and conflicts are ahead:

1. Maintain directional control.
2. Center vehicle over curb.
3. Turn wheel 90 degrees (depending on vehicle and speed) in direction of curb.
4. As soon as you feel or hear front wheel hit curb, you must immediately steer back to maintain lane position.

When four-wheels drop off roadway and conflicts are ahead:

1. Maintain directional control.
2. Move car 2-3 feet away from curb.
3. Turn wheel 90 degrees (depending on vehicle and speed) in direction of curb.
4. As soon as you feel or hear the second front tire hit curb you must immediately steer back to maintain lane position.

Blow Out

When front tire blows:

1. Maintain directional control.
2. Ease off accelerator.
3. Brake gently.
4. When safe, pull off traveled portion of roadway and secure vehicle.

When a rear tire blows:

1. Maintain directional control. (Be alert to a skid.)
2. Ease off accelerator.
3. Brake gently.
4. When safe, pull off traveled portion of roadway and secure vehicle.

Range Make-Up and Equipment

Range Make-Up

	SPECIFICATIONS
Oval or Various Turning Ratio	
Intersections	Major Lanes 15'
	Minor Lanes 12'
Figure Eight	4 Way
	3 Way
Angle Parking	Inside Radius 20'
Double Garage	Outside Radius 32'
Y Turn Area	10' X 20' (at least 3 spaces)
X or T Exercise	20' X 20'
Parallel Parking	30' X 60'
Various Road Surfaces	15' Lanes
Hill	6½' X 25' (both sides of street)
Railroad	Stone-Slag-Sand-Brick-Grass
One Way Streets (right and left)	Curb-No Curb
Freeway Ramp	
Various Lines for Lane Control	Appropriate Signs
	100' Long
Various Control Devices	Solid White
Curbing	Solid Yellow
	Broken White
	Stop Sign-Yield Sign-Lane Control Sign
	As Needed on Hill and Parking Areas

Range Equipment

Six to Ten Vehicles	Signs
Central Storage for Keys	Stop
Traffic Signals	Yield Right of Way
Communication Devices	One-Way
Stanchions	Right Turn Only
Numbered Signs for Cars	Left Turn Only
Barricades	Curve
Traffic Cones	Slow
Traffic Flags	Speed Limit (15 M.P.H.)
Lane Markings	Hill
Button Markers	No Passing Zone
Curbs	Crosswalk
	Railroad (warning and crossbuck)

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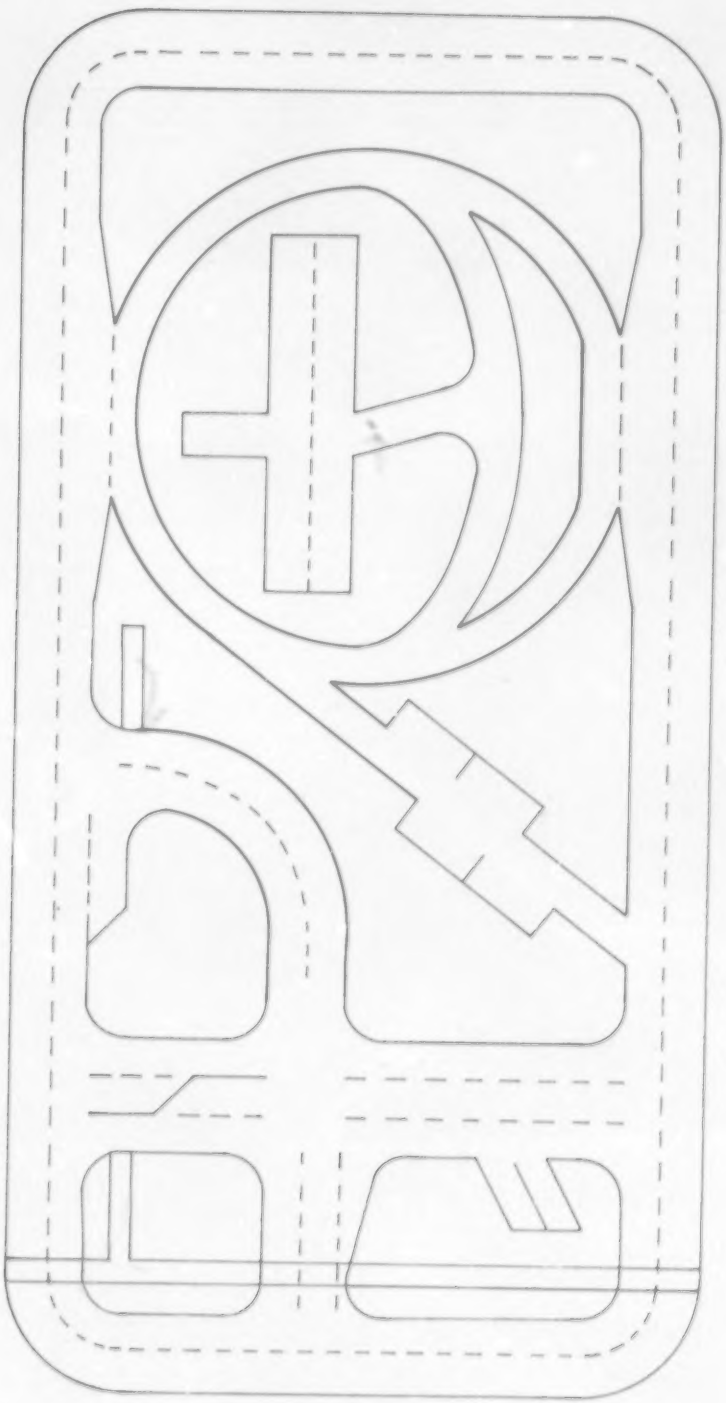
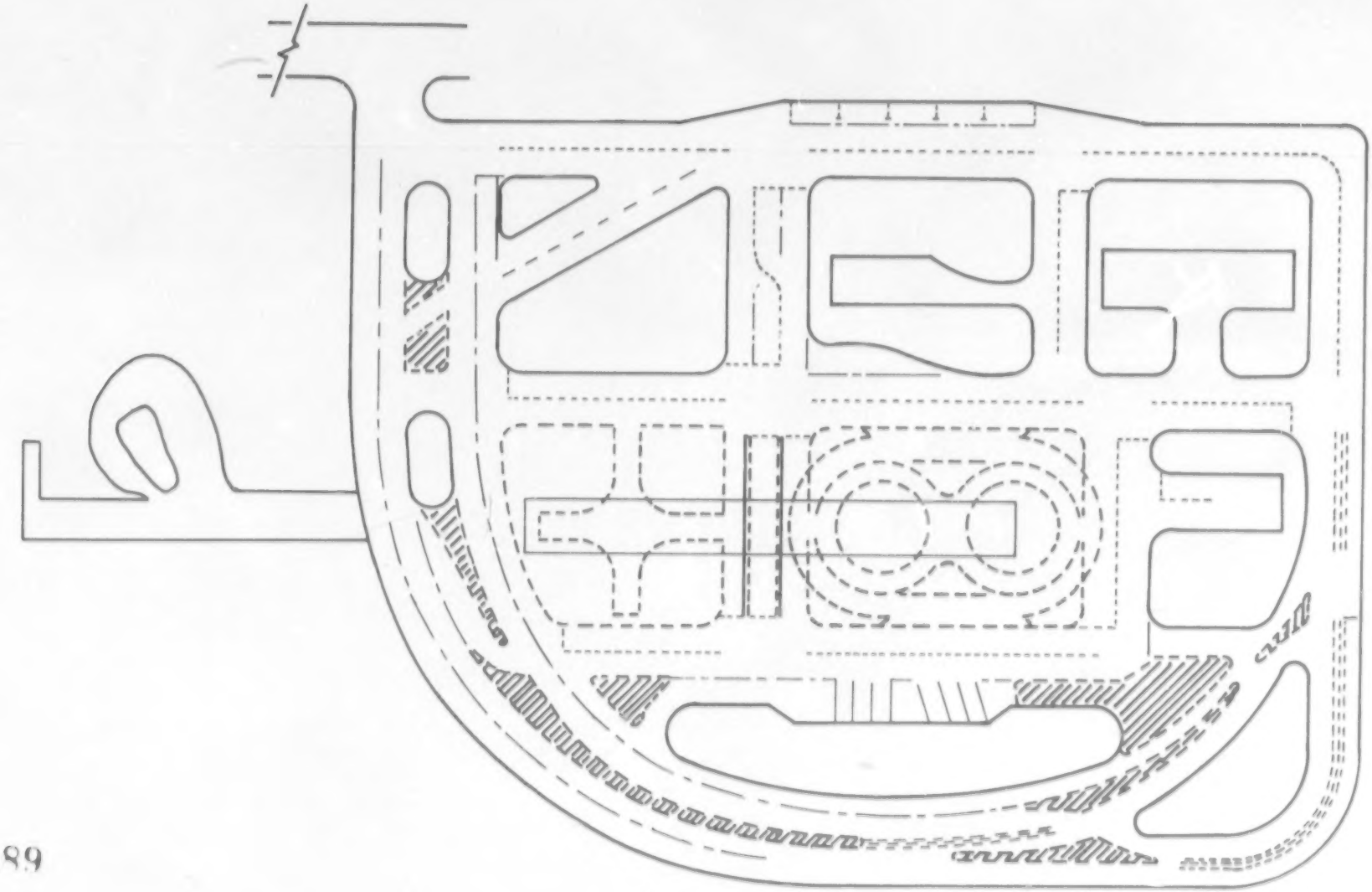
Range Plans

Illinois State University
Multiple-Car Facility
Normal, Illinois



Michigan State University
Multiple-Car Off-Street Driving Range



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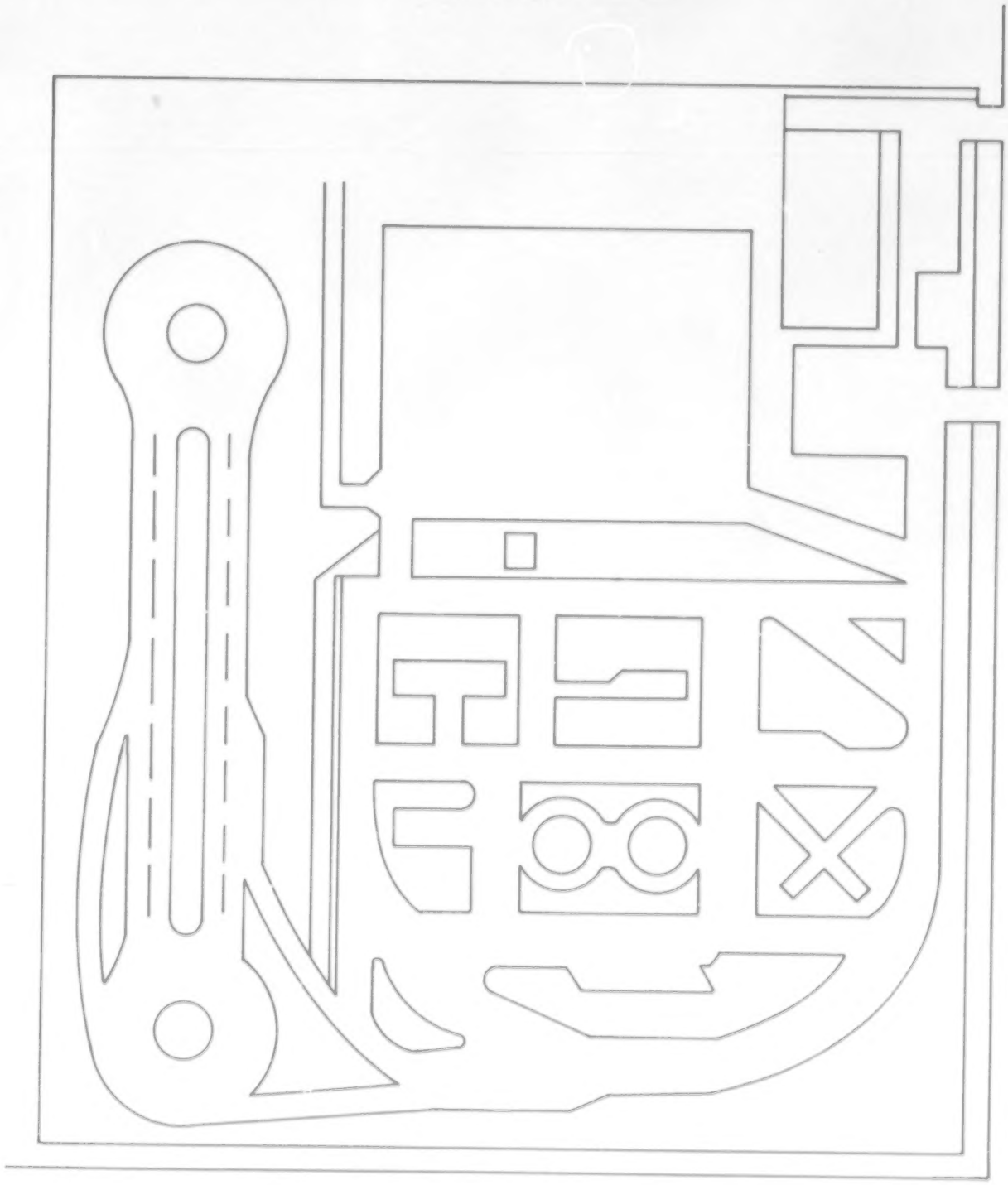
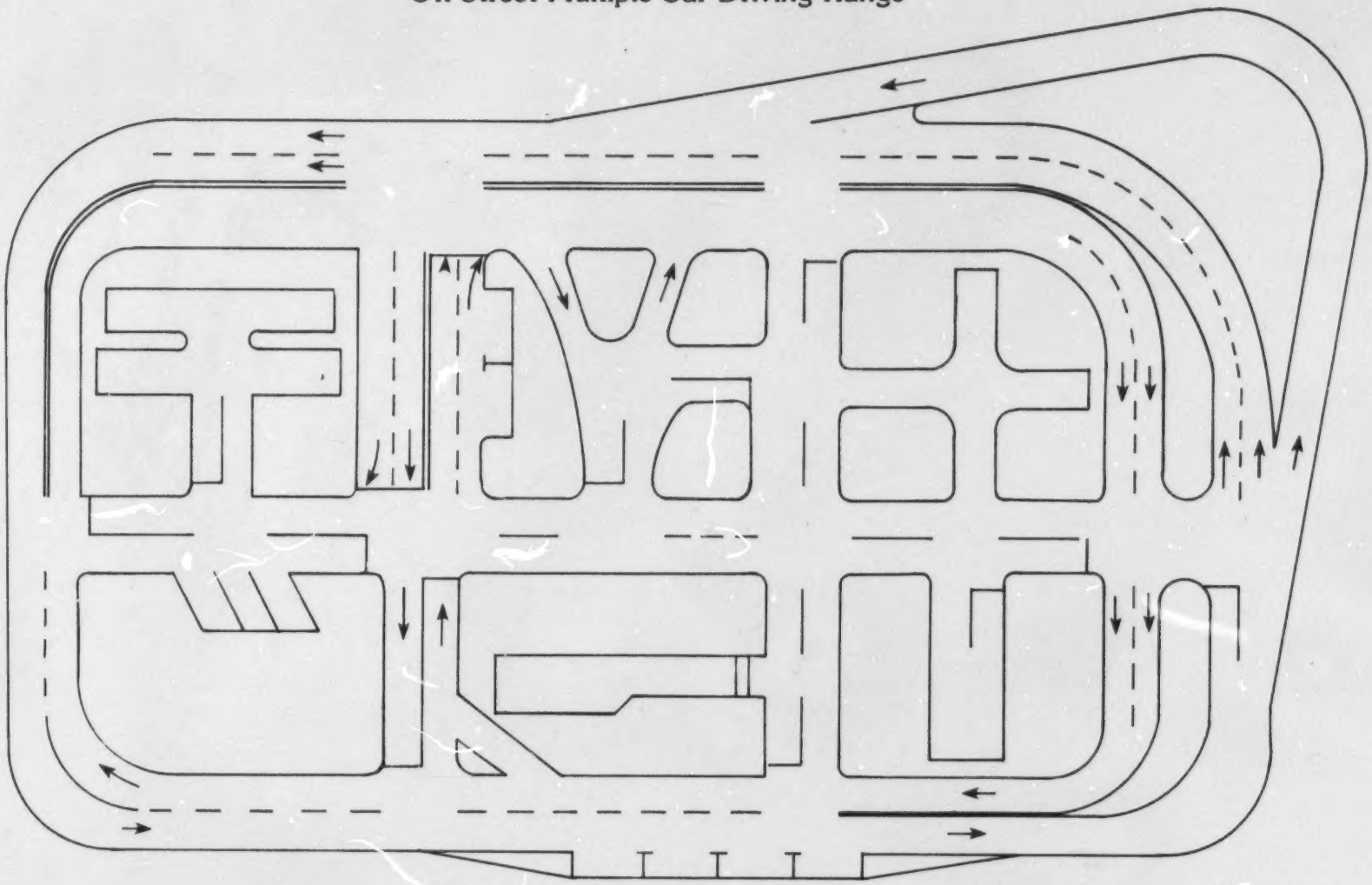
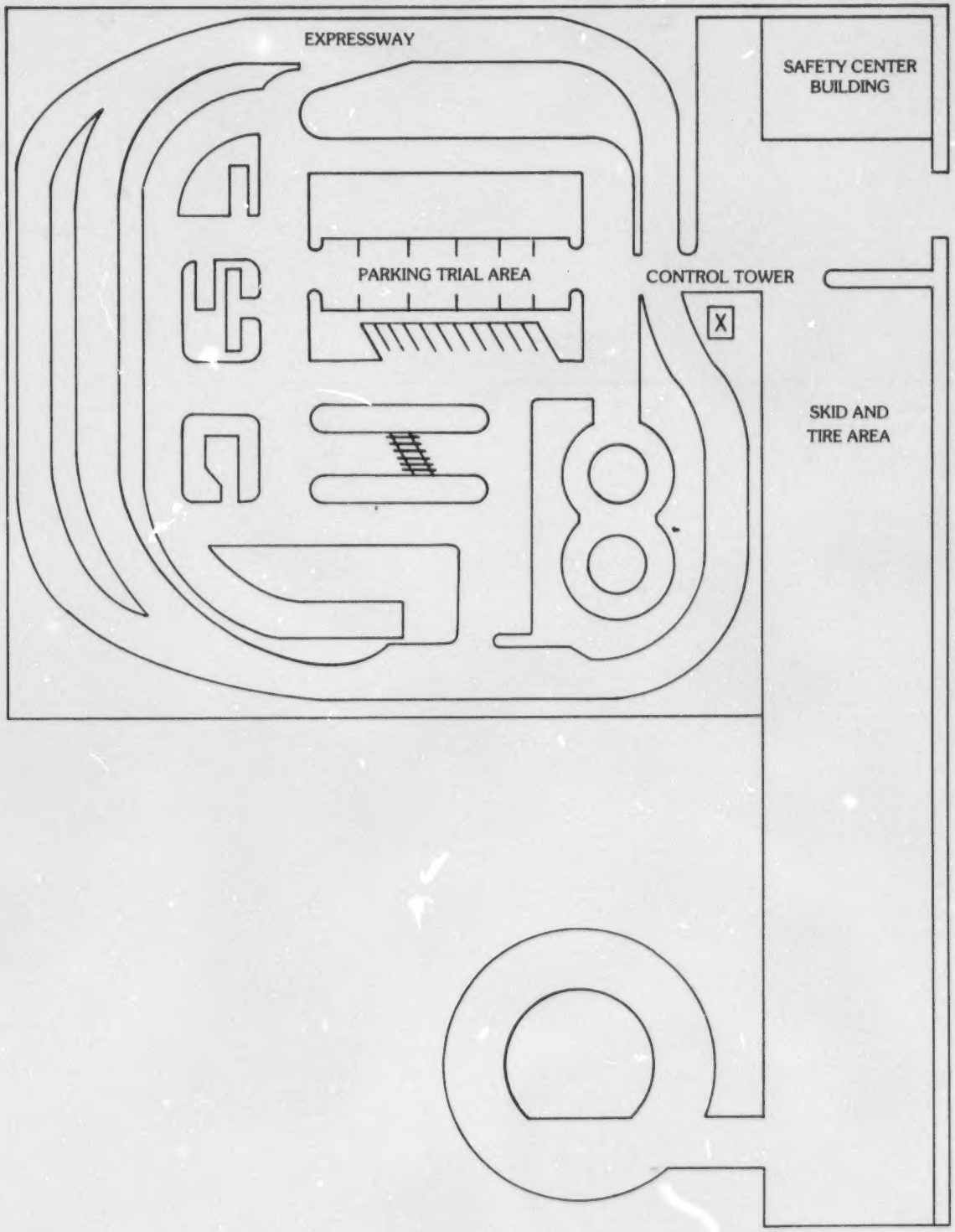
Central Missouri State College
Multiple-Car Facility
Warrensburg, Missouri



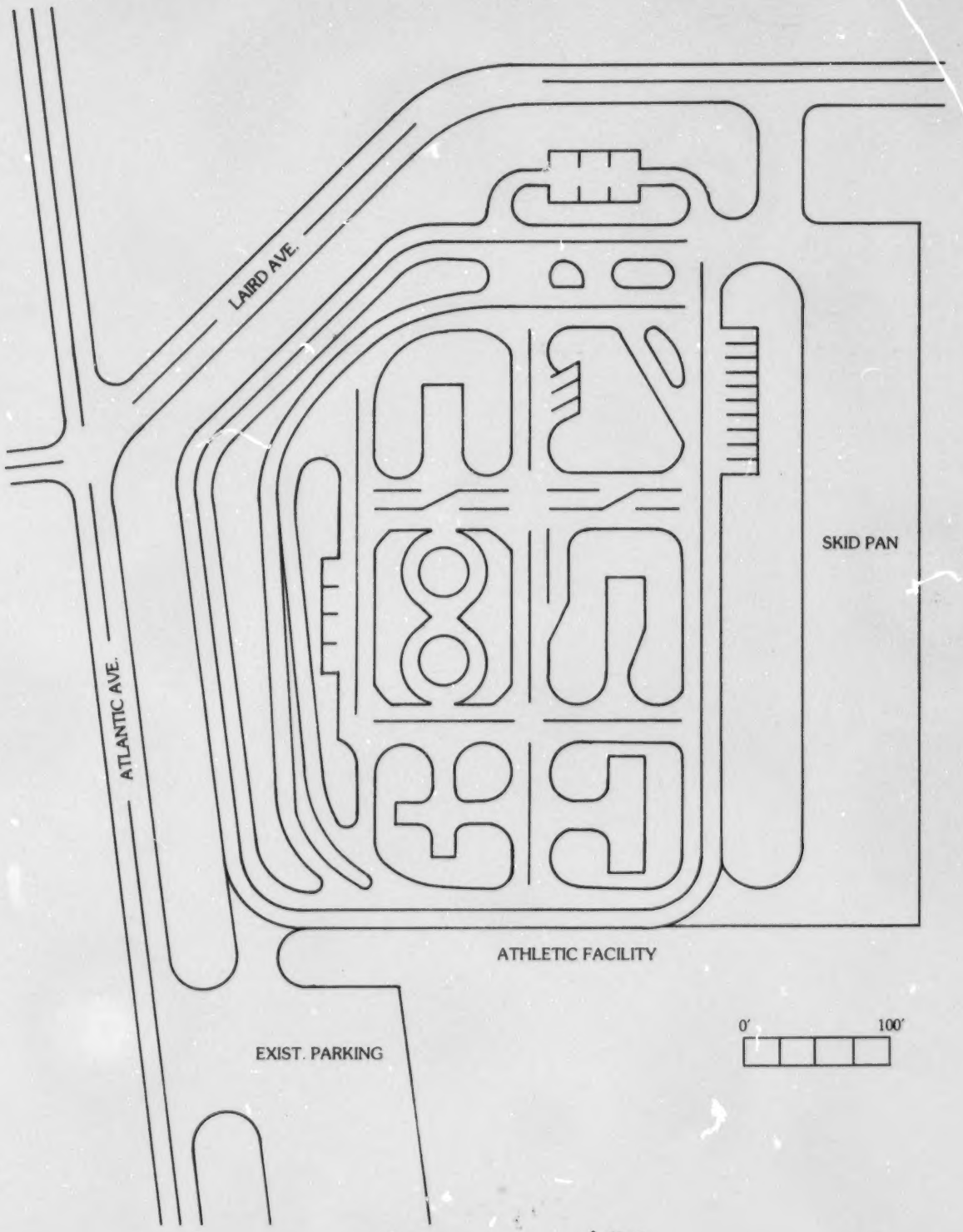
Florida State University
Off-Street Multiple-Car Driving Range



Proposed Southwestern Ohio Safety Center



Warren G. Harding High School
Multiple-Car Off-Street Driving Range
Warren, Ohio



Recommended Procedure to Follow in Case of Range Accident

I. Obtain the following information about people in the car.

A. Name—pilot
Address
Phone
Age
Name—Co-pilot
Address
Phone
Age

B. Car number

C. Instructor

II. Notify the school nurse and follow recommended school accident procedure.

III. Notify the principal's office and controlling administrative offices.

IV. Notify main office.

V. Call the insurance company and give complete information on the accident.

VI. Notify your local dealer.

VII. Get body estimate and take to insurance company.

VIII. Comment—record related data.

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How to Coordinate the Phases with Classroom Instruction

MULTIMEDIA	SIMULATION	RANGE	Sportsmanlike Driving (7th Ed.)	Tomorrows Driving	Safe Performance Driving	Let's Drive Right (5th Ed.)	Driving: A Task Analysis Approach
I. The Driving Task			1*	1	10	1	1
II. Physical/ Psychological Factors			10	3	6	17	4
III. Emotions			10	3	6	18	7
IV. Laws			5		9	5	2
V. Car Orientation	II. Driving Simulator Car Orientation	I. Orientation	2	4	2	2	3
VI. Turns	IV. Turning Maneuvers	III. Making Left and Right Turns	3	6	2 & 3	3 & 9	3
	III. Basic Maneuvers	II. Basic Maneuvers	2 & 3	5	2	2	3
VII. Driving in Traffic	V. Driving in Traffic	V. Introduction to Two-Way Traffic	4	7 & 8	3	7, 8 & 12	5
VIII. Highway and Expressway Driving	VII. Highway Driving	IV. Blending in Traffic	6	9	5	13	5
	VI. Passing	V. Passing	3	9	5	14	3
	VIII. Expressway	VI. Blending in Traffic	3	9	5	14	6
IX. Backing and Parking	IX. Backing	VII. Parking and Maneuverability	3	6	2	3	3
	X. Parking and Turning		3	6	2	3	3
X. Adverse Conditions	XI. Driving under Adverse Conditions		6	10	7	15	6
XI. Meeting an Emergency	XII. Meeting an Emergency		9	10	7	16	9
XII. Alcohol and Other Drugs			10	3	6	19	7
XIII. Motorcycles			11	14	9	11	10
XIV. Buying and Insuring			7	11 & 12	8	20 & 21	8
XV. Natural Laws			8	2	7 & 4	4	2
XVI. Responsibility			1	1		7	7

*Note: These numbers represent chapters or units within the specified texts.

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